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CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 1, NORTH ATLANTIC STATES.

GEORGE W. MINDLING, Acting District Editor.

GENERAL SUMMARY.

The weather of October, 1911, may be described as chiefly a continuation of the favorable and pleasant conditions that were so noticeable during the preceding month. Ordinary temperatures prevailed on nearly all days, and the extremes were well within the October records for recent years. Over most of the immediate coast region of the district south of Connecticut killing frosts had not occurred at the close of the month, while in the greater part of the interior as far northward as central New York there were no damaging frosts or freezing temperatures until the 25th or later. The rainfall was abundant and in nearly all sections overcame the deficiency of September and earlier months, filling the streams and reservoirs to a desirable stage without causing extensive injury to soil by washing or damage to property by floods. The heaviest rains, occurring chiefly on or after the 18th, fortunately, were late enough to interfere but little with agricultural operations. The most interesting feature of the month was the heavy rainfall of a period of nearly six days, beginning on the evening of the 17th and affecting chiefly the region near the middle coast of the district.

The following table presents the leading features of meteorological interest for the various sections of the district:

		Tempe	rature.			Precipi	itation.		Ave	rage er of—
States or parts of States within dis- trict No. 1.	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England New York Pennsylvania New Jersey Maryland, Delaware,	48. 6 49. 3 52. 1 53. 9	$ \begin{array}{r} -0.7 \\ -0.7 \\ +0.5 \\ -0.1 \end{array} $	78 82 83 80	15 12 18 18	4. 04 5. 19 4. 47 5. 49	+0.52 +1.75 +0.75 +1.70	9.58 10.51 9.23 8.23	1. 54 2. 62 2. 59 2. 61	11 12 11 12	13 13 15 16
and District of Co- lumbia West Virginia Virginia		+1.0 +1.4 +0.8	85 87 88	30 23 27	3. 25 4. 25 4. 05	+0.14 +1.81 +0.19	5. 44 5. 33 6. 60	2.21 3.27 2.48	10 10 9	1:

TEMPERATURE.

The average temperature for the district was about 53°, being slightly above the normal but nearly 3° lower than the average for October of last year. There was a slight deficiency in the temperature at most stations in the Northern States, but from Pennsylvania southward

there was an excess averaging 1° or more daily and reaching 3° in some localities. The mean temperature in different sections showed a wide range, varying from 41.4° at Patten, Me., to 61.9° at Eastville, Va.

The number of days with marked abnormalities in temperature was unusually small, and there was a very gradual change, especially in the southern part of the district, from the warm weather at the beginning of the month to the lower, yet seasonable, temperatures that prevailed at its close. In New England and New York the variability of the weather was greater than elsewhere, as would be expected, and the highest temperatures did not occur uniformly within the first 10 days, as in the rest of the district, but were observed on several dates, chiefly the 9th, 10th, and 16th. In the southern half of the district the warmest weather came generally on the 4th.

The temperature remained somewhat above the normal most of the time until near the close of the second decade, after which the prevailing temperatures were generally below normal. The warmest weather of the month was of moderate character, there being few stations north of Maryland where a temperature as high as 80° was experienced, while in some localities the maximum temperature was even less than 70°. The highest temperature recorded in the district was 88° at Dale Enterprise, Va., on the 4th.

The coolest weather of the month, fortunately, did not occur until the 25th or later, the date of the lowest temperature in nearly all sections being the 29th. In a few of the colder localities frosts occurred on the 8th, 14th, and other dates earlier than the 20th, but there were practically no killing frosts in the southern States of the district nor in some parts of New York and New England until about the 28th; over some of the middle and southern coast regions there had been no killing frosts at the end of the month. Numerous observers in the interior commented on the freedom from frost until so late a date. In this respect the season was unusually favorable, except where frosts had caused damage on the 14th of September, but the loss occasioned then was probably more than counterbalanced on the whole by the more favorable conditions prevailing throughout September and October in other parts of the district.

The lowest temperature recorded in the district was 12° at Griffin Corners, N. Y., on the 29th. This is a low temperature for October, but appears to have been the result of conditions limited to a small area, as at nearly all other stations in the district the minimum temperatures were not so low as are often observed in this month.

PRECIPITATION.

The average precipitation for the district was about 4.40 inches, which is nearly 1 inch above the normal. There was practically no snow except in northern New York and New England. The greatest amount of snowfall reported for the month was 5 inches at Benton, N. H. The distribution of the precipitation was uneven and the dates of occurrence differed considerably in different States owing to the limited extent of three of the principal storms. The first of these, which occurred on the 1st and 2d, affected chiefly Pennsylvania and part of New Jersey, causing a downpour of 2 to 5 inches over large sections of these States. At Hamburg, Pa., 5.61 inches of rain fell between 1.30 p. m. of the 1st and 3 a. m. of the 2d. The next of these storms, which occurred on the 7th, caused heavy rains in the southern part of the district, exceeding 1 inch in some localities, but produced no effects over most of Maine and the northern parts of New Hampshire and Vermont. The third storm, affecting chiefly the middle portion of the district, began on the 17th and continued until the 19th. Like the two mentioned before, its center passed to the east near the New Jersey coast, bringing that region and adjacent sections under the influence of northeast winds with conditions favorable to unusually heavy rainfall. The precipitation resulting from this storm amounted to more than 4 inches in parts of New York, Connecticut, Massachusetts, and Vermont and was generally in excess of 2 inches over an extensive area including parts of these States and of Pennsylvania and New Jersey. At Canton, Conn., 6.64 inches of rain fell within 24 hours on the 18th-19th. The storm of the 18th was followed by a period of unsettled weather and another well-developed storm that slowly crossed the district on the 21st-23d. This prolonged the period of rainy weather, and precipitation occurred almost daily from the 18th to the 23d, inclusive, between Maryland and Massachusetts and on about four days of this period over the rest of the district. In most sections more than half of the month's rainfall occurred within this period. In addition to the dates already given there was extensive rainfall on the 4th, 6th, 11th, 15th, 27th, and 31st.

RIVER CONDITIONS.

The heavy rainfall of the month was sufficient to fill the rivers of the central part of the district to higher stages than had occurred since last March or April. The average stages for the month in Pennsylvania were also higher than in any October since 1903 or 1904. Flood stages, however, were attained in only a few instances, chiefly along the upper course of the West Branch of the Susquehanna River on the 2d.

Susquehanna River on the 2d.

In the Hudson River and its tributaries the water during most of the month was much higher than usual in October, the average stages at Schenectady and Hoosick Falls being the highest for this month since the beginning of the records, about nine years ago. However, the streams were very low on the 1st of the month, the lowest stage on record for October at Trenton Falls, N. Y., being observed on that date. A marked rise in the streams was general from the 1st to the 4th or 5th and another from the 17th to the 24th.

SUNSHINE.

The percentage of sunshine was nearly normal, the average for 15 stations being 49. The percentage was only 40 at Block Island, but was 58 at Atlantic City, N. J., and Portland, Me., where the total amount of sunshine was greatest. The total sunshine for the month in hours averaged 168 and at different stations varied from 137 to 202. The number of days with 80 per cent or more of the possible sunshine averaged 11 and the number with 20 per cent or less, 10.

TABLE 1 .- Climatological data for October, 1911. District No. 1, North Atlantic States.

			rears.	Tem	perature	, in c	legre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfail, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	N u m ber of cloudy days.	75	Observers. ,
Maine.				1										10						period announced
Bar Harbor Cornish Eastport Fairfield Fairfield Farmington Gardiner Greenville Houlton Lewiston Millimocket North Bridgton Drono Patten Portland Rumford Falls Winslow New Hampshire.	York. Washington. Somerset. Franklin. Kennebec. Piscataquis. Arostook. Androscoggin. Somerset. Penobscot. Cumberland. Penobscot. do Cumberland. Oxford.	20 778 53 90 450 163 1,000 362 185 257 386 450 129 550 99 99 90	25 56 39 26 14 19 7 9 37 8 8 18 42 9 40 18	42.9 49.0 44.4 44.3 48.4 46.7 41.4 49.4	+ 0.4 + 0.3 - 0.1 - 0.3 - 1.4 - 1.7 + 1.8 - 0.7 + 0.5 + 0.3 - 2.1	73 77 68 72 78 74 71 70 74 73 75 74 73 75 74 73 75 76	11 12 11 11 11 11 11 11 11 12 11 12 12 1	28 19 29 23 18 22 20 22 26 20 22 23 22 21 7 28 22 25 22 25	28 29 28 29 29 29 28 29 29 28 29 28 29 29 28 29 29 28	31 42 21 57 47 39 39 40 35 38 43 36 42 46 26 36 41	2.99 1.57 1.68 3.08 2.35 2.63 1.80 2.38 3.44 1.77 2.82 1.94 1.54 1.85 3.23	- 2.27 - 1.27 - 2.28 - 0.98 - 0.26 - 1.16 - 1.41 - 0.31 - 1.96 - 1.81 + 0.39	. 90 . 64 1. 32 0. 52	T. 0 1.2 2.0 0 T. 1.0 0 T. 0.6 0 0.5 T.	7 12 8 5 10 10 11 5 12 7 9 11 8 6 12 9 7	16 15 5 17 12 15 25 14 20 14 13 11 13 19	4 4 12 7 9 5 2 7 0 2 8 9 6d 5 4 3	11 12 14 7 10 11 15 9 10d 13 8 9	NW.	William Miller. T. H. West. U. S. Weather Bureau. E. F. Parker. State Normal School. Samuel D. Soule. U. S. Weather Bureau. Bangor & Aroostook R. R. Union Water Power Co. William Jardine. H. S. Ferguson. G. E. Chadbourne. Agr. Exp. Station. Bangor & Aroostook R. R. U. S. Weather Bureau. Charles A. Mixer. Hollingsworth & Whitr Co.
Alstead Center	Graftondo		7 2 19 51 16 12	45.8 43.4 44.4 47.1 47.2 47.3	- 2.5 - 1.8 - 1.6 - 1.9	66 66 65 70 72 74	9 10 10 16 10† 16	25 19 20 23 20 18	28† 28 28 29 29 29	34 30 31 36 37 40	4.01 3.70 3.73 1.89	+ 2.87 + 0.60 + 0.49 - 1.87	1.50 1.26 1.10 1.62 .44 2.03	2.5 5.0 4.0 0.2 0 0.8	13 8 13 12 8 12	17 13 11 10 15 16	2 6 11 7 5 4	12 12 9 14 11	nw. nw. w., nw. ne. w.	Frank Dewing. State Sanatorium. Benjamin Tucker. U. S. Weather Bureau. Agr. Exp. Station. Dr. C. P. Webster. P. R. Kimball.
Grafton	GraftondoCheshireHillsboroRockingham	863 603 506 125	25 77 26 26 23 23	1	- 1.2 - 0.9 - 0.2 - 1.2 - 0.4	71 72 71 71 69	10 16† 9† 12 12	19 17 25 23 17	4 29 29 29 29	44 41 36 36 36	3. 95 5. 88 3. 66 2. 92	+ 1.37 + 2.53 + 0.01 - 1.34 + 1.12	1.70 1.63 1.37 .70 1.09	0.9 0.5 0 T.	11 12 14 11 12	12 12 12 11 18	9 7 10 0	10 12 10 13	sw. nw. nw.	P. R. Kimball. Dartmouth College. Samuel Wadsworth. Jackson Company. W. C. Gale. Hattie G. Trow.
Vermont. Bloomfield	Femr		4	44.0		69	14	17	28	46	9 75		.54	1.2	11	16	7	8	s.	Lyman Falls L. & P. Co.
Savendish Chelsea acksonville dianchester St. Johnsbury Woodstock	Windsor Orange Windham Bennington Caledonia	910 840 1,000 980 711	8 16 26 12 18 19	42.6	- 2.0 - 0.8 - 1.8	65	16 10 10 10	20 25 19 18	29 8† 29 29		10. 93 3. 00 3. 58	+ 6.43 + 1.56 + 2.53	2. 93 1. 13 . 87	4.3 T. T. 2.0	10 11 12 8	15 10 8 11	3 10 11 9	13 11 12 11	nw. sw. nw.	M. A. Kingsbury. W. F. Dewey. Martha French. N. M. Canfield. Fairbanks Museum. John S. Eaton.
Massachusetts.																				
Amherst. Blue Hill Boston. Chestnut Hill Clinton. Concord. Fall River. Fitchburg. Framingham Hyannis. Lawrence Lowell Middleboro. Monson. Nantucket. New Bedford Norfolk. Plymouth. Provincetown. Rockport. Rutland. South Egremont. Turners Falls. Westboro. Williamstown. Worcester. Rhode Island.	Norfolkdo Vorvester. Middlesex. Bristol Worcester. Middlesex. Barnstable Essex. Middlesex. Middlesex. Hymouth Hampden. Nantucket. Bristol Norfolk. Plymouth. Barnstable Essex. Worcester. Worcester. Berkshire Franklin Worcester. Berkshire Berkshire Berkshire Worcester.	640 124 370 139 200 550 160 31 51 100 53 420 15 88 244 25 1,160 764 200 298 711 518	20 27 26 25 27 25 9 8 26 24 9 9 20 37 30 19	48. 2 51. 8 48. 9 50. 6 51. 5 49. 3 50. 8 47. 6 52. 4 48. 6 52. 0 50. 8 47. 9 44. 0 46. 8 51. 4 47. 7 49. 6	- 1.7 - 0.9 + 0.4 - 0.6 - 3.1 + 0.2 - 0.4 - 1.0	70 69 72 71 66 71 70 72 68 70 70 75 68 69 67 68 62 69	9† 12 22 22 12 23 12 12 9† 12† 12† 10† 22 16	24 29 34 27 27 21 34 24 28 25 20 19 37 34 15 22 25 20 20 20 31 32 32 32 32 33 34 32 32 33 34 34 34 36 36 36 36 36 36 36 36 36 36 36 36 36	29 28 28 29 29 28 29 29 29 29 29 29 29 29 29 29 29 29 29	36 18 21 48 28 23 21 32 33 25 35 28 26	3. 01 2. 27 3. 22 4. 87 3. 42 2. 28 4. 64 3. 57 2. 47 2. 93 3. 71 2. 57 2. 10 4. 88 4. 64 4. 75 3. 19 5. 7. 95 7. 95 7. 95 5. 08 3. 53	+ 5.06 - 1.70 - 1.59 - 0.98 - 0.56 - 2.455 + 0.66 78 - 1.24 - 0.92 - 1.42 - 0.25 - 1.42 - 1.89 - 1.41 -	3. 45 .64 .52 .63 1.91 .94 .55 1.37 .78 .78 .74 .74 .60 .60 .75 .76 .60 .2.19 .3.20 .2.39 .3.20 .2.39 .3.20 .2.39 .3.20 .2.39 .3.20 .2.39 .43 .82	0 0 0 0 0 0 0 1.55 0 T.	12 13 12 7 12 11 8 9 17 11 8 11 12 14	16 14 9 9 14 7 14 10 15 13 15 18 13 15 13	3 8 16 9 7 7 0 7 4 4 0 7 5 1	14 10 14 16 11 12 13 11 11 17 13 15	sw. w. nw. nw. nw. sw. w. w. w. w.	Agr. Exp. Station. A. Lawrence Rotch. U. S. Weather Bureau. Met. Water Board. Do. Fred A. Tower. C. V. S. Remington. Dr. A. P. Mason. Met. Water Board. C. F. Sleeper. Essex Company. Props. Locks & Canals. A. R. Gurney. Dr. G. E. Fuller. U. S. Weather Bureau. City Engineer. Ruby H. Martyn. Laura B. Knapp. Gideon Bowley. C. F. P. Bearse. State Sanatorium. Roscoe C. Taft. Turners Falls Co. G. S. Newcomb. Williams College. G. W. Swan.
Block Island Bristol Kingston Narragansett Pier Providence	Bristol	250 22	31 25 22 29 7	52.8	- 1.3 + 0.5 - 0.6 - 0.6 - 0.2	66 66 70 72 70	12 12 12 12 9†	40 34 29 27 29	28 29 29 29 29	15 18 31 28 26	3.94 2.66 5.01 3.44 2.79	- 0.17 - 1.50 - 0.50 - 1.10 - 1.07	1.29 .70 1.95 1.05 .51	0	11 10 12	14 10 15	3	16 10 12 13 13	e. w. n.	U.S. Weather Bureau. N. G. Herreshoff. Nathaniel Helme. U.S. Weather Bureau. Do.
Connecticut. Bridgeport	Fairfield	20	18	53. 2		72	10t	28	29	36	7.01		2.47	0	9	14	6	11	s.	William Jennings.
Canton Colchester Cream Hill Danielson Hartford Hawleyville New Haven Now London North Grosvenor Dale Southington Storrs Voluntown Waterbury	Hartford New London Litchfield Windham Hartford Fairfield New Haven New London Windham Fairfield Hartford Tolland New London	900 370 1,300 300 159 600 107 47 400 116 140 640 260	50 25 15 9 7 13 124 41 21 42 23 26	50.3 48.6 49.2 49.3 51.8 51.4 53.2 54.1 49.4 51.4	+ 0.9 - 2.3 - 1.7 + 0.6 - 1.4 + 0.9 - 1.2 - 0.1 - 0.6 - 0.1	70 69 68 69 71 70 71 76 74 69 68	10 10 10† 16 10 10 16 20 10 12 5† 16	28 29 20 22 20 31 29 32 31 19 26 21 24	29 28 29 29 29 29 29 29 29 29 29 29 29 29 29	36 36 36 32 34 31 32 28 28 37 31 36 34	9.58 5.82 5.47 3.03 7.30 7.27	+ 3.44 + 2.81	6, 64 1, 65 1, 90 1, 12 4, 67 2, 25	000000000000000000000000000000000000000	9 11 11 8 13 11 11 7 9 10 10	14 12 16 13 7 13 11 13 15 16 9	3 6 4 8 9 5 7 9 3 3 3 13	14 13 11 10 15 13 13 9 13 12 9	n. w. w. s. n. ne. nw. nw.	G. J. Case. S. P. Willard. C. L. Gold. F. E. Bitgood. U. S. Weather Bureau. C. B. Hawley. U. S. Weather Bureau. T. C. Dillon. Grosvenor Dale Co. G. C. Comstock. Luman Andrews. Agr. Exp. Station. Frank S. Bitgood. N. J. Welton.

TABLE 1.—Climatological data for October, 1911. District No. 1—Continued.

			years.	Tem	peratur	e, in	degre	es Fab	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
New York.																				
ddisonlbany	Albany	1,000	21 90	51.3 50.6	- 1.1 + 0.2 + 1.8	82 70	9	20 31 21 23 24 22 25 21	29 29	42 30	2.91 5.00	+ 0.05 + 2.01	0.70 2.31	0	12 12	12 15	6	12 10	SW.	Dr. H. R. Ainsworth. U. S. Weather Bureau.
lfredmsterdam	Montgomery	277	16	48.6	+ 1.8	81 72	11 4	21 23	9 29	38 33 32 34 35 30	5.83	+ 0.30	0.77 1.80	T.	10 11	14	4	13	е.	Prof. F. S. Place. Emory Elwood.
thensallston Lake	Greene	90	7 9 7	50.2		70 67	10	24	29 29 29 29 29 28	32	6.14		1.94 2.16	0	10	12 14	7 5	12 12	SW.	E. C. Brooks. George R. Schauber.
inghamton	Broome	875	20 14	49.1	- 0.1 - 1.0	75	4	25	29	35	3.37	+ 0.25	0.77	0	13	4 5	7 9	20 17	e. nw.	U. S. Weather Bureau. L. W. Griswold.
inghamton ouckville. oyds Corners. armel. hatham. ooperstown orith. ortland. utchogue. e Ruyter. lens Falls. loversville. reenfield Center reenwich.	Putnam	1,350 560	29 19			69	4				7.54	- 0.52 + 3.37	0.74							Thomas Manning.
armel	Columbia	500 470	19	50.0 49.7	- 0.9 - 0.3	72 70	11 10	22 23 24	29 29 29	30 34 30	7.04	+ 2.97 + 1.05 + 1.61	3.06 1.46	0	12	15	6	12 11	nw. n.	Do. Morton R. Tank.
ooperstown	Otsego	1,250 542	57	46.5	- 0.2	66	4	24	29	30	6.83	+ 1.61	1.32 1.92	0	12	12	10	9	8.	Miss Elizabeth C. Keess A. M. Hollister.
ortland	Cortland	1,129				74	41	25	29	32 26	4.11	+ 0.22 + 1.79	0.73	0	12 10	11 14	6	14	8.	F. G. Baker.
e Ruyter	Madison	1,300	8	47.6	- 1.2	71	10 4 9	25 32 21 23 20	29 29 29	38	3.64		1.50	т.	13	13	4	11 14	nw.	William A. Fleet. B. D. Crandall.
ortland utehogue e Ruyter lens Falls loversville reenfield Center reenwich riffin Corners askinville oomer oosick Falls dian Lake	Warren	340 850	20 19	48.7	- 0.6 - 1.5	77 72 70 70	4	23 20	28† 29	40 34	6.69	$+3.62 \\ +4.12$	2.48	2.0 T.	14	17	6	12 12	SW.	Prof. C. L. Williams. W. L. McLean.
reenfield Center	Saratoga	314	13	48.4	- 1.6 - 0.2	70	12 11	24 25	28+	33 41	6.56 5.37	+ 3.18 + 2.39	2.50 1.98	0	12 12	17	8	11 5	sw.	S. E. Darrow. Homer J. Whitcomb.
riffin Corners	Delaware	2,260	11	47.0	+ 0.6	78 74	10	12	281	43	4.44	+ 0.68	1.10	0	9	13	2	16	W.	Harold O. Judd.
askinville omer	Cortland		20	47.6	+ 1.6	76	4	22	29	34	3.48	+ 0.64	0.76 0.58	T.	10 12 11	13	3	15	nw.	W. G. Collins. Charles C. Mortimer.
oosick Falls	Rensselaer	410 1,705	12	44.2	- 1.0	69	4†	14	28	44	5.03	- 0.31	1.80	0	11 10	14	3	13	se. n.	Sanford L. Cluett. Lester Severie.
fforson villa	Sullivan	1 240	8	47.8		74	16	19	29	41	5 11		1.48	0	11	14	5	12 13	W. 80.	Chas. Wilfert, jr. Dr. H. M. King.
iberty ittle Fallsohonk Lake	Herkimer	924	29 13	47.7	-0.4 -1.3	70	1 4	24 25	28 29 27 28 29† 28 28 29	27 29 26 35 33 32	4.24	+1.37 +0.78	0.90	0	9 12	18	5	8 9	w.	O. J. Demster.
ohonk Lake orehouseville	Ulster Hamilton	1,245 1,697	15	49.4	- 0.6	65 68	5†	17	29†	26 35	5.88	+ 6.74	3.40 1.63	3.0	9	17 20	5 5 2	9	nw. w.	A. K. Smiley. Theo. C. Remonda.
orrisvilleount Hope	Madison	1,325 200	14	47.2	- 0.4	74	5	23 30	28	33	2.62 8.58	+ 3.87	0.66 2.10	T.	10	8	10	13	nw.	Prof. I. M. Charlton. W. A. Cornelius.
ewark Valley	Tioga	825	24.		- 0.4						4.34	+ 0.65	0.96	0	11					M. D. Clinton.
ew Berlin	Chenango	1.234	21	45.2	- 0.7	70	10	17	29	40		+ 1.37	0.85	0	10	9	6	16	S.	Roger Greene. G. A. Yates.
ew Lisbonew York City	Otsego New York Warren	314	86	55.6	± 0.0	72 69	4	39 18	29 28 30	40 23 35	5.38	+ 1.67	1.82	0	12	18	8	°15	SW.	U. S. Weather Bureau. W. G. Kenwell.
orthville	Fulton	742	3 9								5.35		1.20	T.	9 15	14	2	15	nw.	P. C. Picard. H. W. Lee.
neonta	Chenango	916	17 46 7	48.3	-0.7 + 1.2	68 70	4 5	24 22 36	29	31 34	5.12	+0.36 + 1.65	0.98	0	13	11	12	8 13	S.	J. P. Davis.
yster Bay ort Jervis	Orange	40 470	27	55. 2	- 0.9	70 72 76	10	18	29 29 29 29 29 28	20 36	5. 89	+ 2.20	1.81	0	13	16 15	3	13	sw. ne.	Prof. Thos. Colby. Wilbur F. Crane.
omedisbury	Oneida	445	15 14		± 0.0 - 3.0	76 71	5 2	21- 20	28 28	33 38	6. 43	+ 3.00 + 1.78	1. 47	0	11 12	16	7	8	w.	John O'Mara. Joseph Ryan.
earsdale	Westchester	200	7 26	53. 8		70	12†	30 35	29 29	28 21	3.87		1.77	0	11 10	13	10	8 13	ne. e.	C. H. Wilmarth. Selah B. Strong.
tauket	Chenango		4		- 0.2		4				3. 58	+ 1.59	. 90	0	7					E. B. Collins.
outhamptonoutheast Reservoir	Suffolk Putnam	36 310	10		- 0.9	67	4†	30	29	23	4. 23 6. 17	+ 0.89 + 1.83	1. 31	0	10	15	7	9	nw.	W. L. Jagger. Thomas Manning.
oier Falls	Saratoga	400 751	10 8			72	12		3	40a	7. 19		2.70	0	13	9	10	12	w.	George E. Fifield. C. W. Young. R. S. Marshall.
renton Falls	Montgomery	268	8								5. 30		2.00	0						R. S. Marshall.
ticaading River	Oneida Suffolk	537 112	45	57.3		71	5	34	29	25	7.02	+ 0.22	0.95 2.20	0	11 10	21	3	7	nw.	W. E. Young. H. B. Fullerton.
ading Riverappingers Falls	Dutchess	110 538	21 17	50. 4	- 1.4	66	5t	27	29	24	8. 64 5. 50	+ 4.65	2.04 1.20	0	15 13	13	9	9	nw.	H. C. Townsend. John W. Sly.
averly	Tioga	824	29	49.7	+ 0.3	80 71	10	18	29 12	42 53	3.73	+ 1.64 + 0.65	0.94	0	17 10	11	6	14	nw.	J. F. Shoemaker. Vernon E. Dewey.
Vells	Albany	946	5 12	47.2	- 2.4	72	9†	19	29	45	3. 97	+ 0.43 + 4.67 + 0.43	1.15	0	12	11	5	15	se.	W. J. Haverly.
est Pointindham	Greene	167 1,520	62	51. 6 46. 4	- 1.6 - 1.8	70 68	20	30 19	30 29	24 35	3. 97	+ 4.67	1. 20	0	8	10	14	7 9	nw.	U. S. Military Academy A. R. Mott.
Pennsylvania.		,,	-																	
	Dlair	1,181	23		1 00	78	5	20	20	20	3 99	+ .80	1.14	0	8					C. W. Billin.
ltoonaethlehem	Northampton	260	10	54.0	+ 3.0	76	8	30	28	28 45	3. 22 7. 23	+ 4.03	2.83	0	10	13	2 8 6	16	nw.	Prof. E. C. Roest. Raymond C. Ogden.
earfieldrifton	Clearfield Luzerne	1,107 1,633	13	47.0	9	80 67	4	30 30 22 23 22 26 28 27 31	29 28 29† 29	37 27 35	4.59 5.50	+ 1.90	2.39 1.50	T.	11 13 12 11	12 16	6	11 9	w. w.	Eckley B. Coxe, jr. T. B. Lloyd.
mporium	Cameron	1,050 384	24 11	49.2	9	67 77 76	4	22 26	29† 29 29† 29 30 30 29 29† 29 29† 29 29 29 29 29 29 29 29 29 29 29 29 29 2	35 40	3.64	+ .49	1.15	0	12	9 13 14	10	12 15	w. w.	W I. Frants
veretteorge School	Bedford	1,080	13	52.9	-1.4 + 1.6	1 78	16	28	29†	40 37 42	3. 22 4. 27	+ .53	. 60	0	10	14	14	3 10	nw. se.	B. L. Steckman. N. W. Swayne. Col. E. B. Cope.
ettysburg	Adams	184 600	37	53. 9 53. 8	+ 3.1	80 75	4	31	29+	42 36	3. 45	+ .30	1.60	0	13 12	21	6	11	8.	Col. E. B. Cope.
ordonamburg	Schuvlkill	804 380	15	50. 2 51. 7	- 2.2	73 72 79	11+	21 27	30	38 32 25 34 37	7. 42 9. 23	+ 5.24	3. 32 5. 61	0	1 7	12 18	6 2	13 11	ne. nw.	Capt. J. G. Johnson. W. J. Kalbach. U. S. Weather Bureau.
arrisburguntingdon	Berks	361 650	23 23	54.6	- 2.2 + .6 + 1.1	79	4	33	29	25	2.80	15 + .89	1.23	0	10	8 10	10	13	n. w.	U. S. Weather Bureau. Prof. W. J. Swigart. H. C. Mauk.
yndman	Bedford	977	4	54.3		81	4	27	30	37	3.88		1.04	0	12	7 12	12	12 15	sw.	H. C. Mauk. C. P. Darling.
banon	Lebanon	1,006 458	13 24	52.6	+ .8	82 74 74 81	4	28	29	45 30 30 34 40 37	2.70	28 07 05 + 1.33	0.80	0	12	13	5	13	w.	Sowers & Rothermai.
Royek Haven	Bradford	1,400 560	22 23	49. 3 53. 4	+ 1.2	81	4	26 27	29†	30	3. 39 4. 49	$\frac{-0.05}{+1.33}$. 95 1. 66	0	13	12	5 14	14 10	w.	G. W. T. Warburton. Prof. J. A. Robb.
arionauch Chunk	Franklin	640 634	7	55.0	+ .5	83 75	16	31	291	40	2.78 5.20	+ 1.23	1. 20 1. 42	0	10 11	10 12	8	13 13	w.	Hon. C. B. Hege. F. C. Wintermute.
ifflintown	Juniata	445	22 7	52.7		78 72	4	25	29	32	4.41		1.09	0	12	13	8	10	W.	Wellington Smith. Mrs. Alla Doughty.
ilfordontrose	Pike Susquehanna	455 1,658	8 7 7	49.0		70	10	19	28	31	7. 25 4. 48		2. 21 1. 00	0	14	14	6	11	ne. s.	Silas Jagger.
ew Germantown	Perry Philadelphia	873 117	7 40	53. 4	+ 1.1	80 76	4	21 27 33 26 27 19 28 26 27 31 24 25 19 24 25 19 24 25	28	32 40 31 36 22 37 31 34 32 33 35 40 29	3.77	+ 1.10	1.25	0	7	12	9	18 14	w. n.	Ed. C. Johnston. U. S. Weather Bureau.
hiladelphia (1) ocono Lake	Monroe	1,662	9	46. 4		68	4	18	29	37	4. 26		1.10	0	11 12	10	9	19	w. nw.	Pocono Lake Ice Co.
eading	Lackawanna	280 805	38	54.0	+ .6	76	4	26	29	34	3.70	04 + 1.09	1.10	0	14	9	6	16	n.	U. S. Weather Bureau.
linsgrove	Snyder	455 1,191	23 23 16	53. 4 51. 1	4 + 1.3 + .6	68 76 74 76 77 77 79 75 80	4	18 31 26 26 27 22 19 33 28	30	32	6.63	+ 2.98	1.75 2.78	0	11 13	0	16	15	se. w.	J. M. Boyer, C. E. Prof. Wm. Frear.
ate College	Center Bradford	754	16	50. 3	3	77	4	22	29	35	3.50 2.85 4.23 3.82	+ .19	1.11	0	13	12	4	15	6.	Hiram E. Bull, C. E.
owandaellsboro		1,327	34 57	50. 4	+ 1.4	79/0	4	100	00	AD	9 05	69 + .35 + .37	. 70	0	9	14	10	7	nw.	O. L. White.

TABLE 1.—Climatological data for October, 1911. District No. 1—Continued.

			years	Tem	perature	, in c	legre	ès Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,	-	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, ye	Moan.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of	Prevailing wind c	Observers.
New Jersey.																				2
asbury Park ttlantic City sayonne selvidere selvidere sergen Point Soonton ridgeton surlington anton ape May City charlotteburg chatham layton layton layton liver's Lake live	Atlantic. Hudson Warren. Hudson. Morris. Cumberland Burlington. Salem. Cape May Passale. Morris. Gloucester Middlesex. Sussex. Morris. Union. Hunterdon. Camden. Atlantic. Mercer Bergen. Burlington. Hunterdon. Sussex. Atlantic. Mercer Bergen. Burlington. Hunterdon. Common. Hunterdon. Sussex. Atlantic. Monmouth Bergen. Burlington. Hunterdon. Sussex. Passaic. Monmouth Bergen. Burlington. Hunterdon. Sussex. Passaic. Worris. Sussex. Atlantic. Passaic. Warren. Union. Atlantic. Morris. Somerset. Essex. Sossex.	22 16 50 289 31 31 21 24 17 719 234 126 100 848 600 33 31 87 75 54 95 550 175 54 95 61 61 61 65 65 200 26 200 442 23 43	23 38 20 21 20 21 22 27 27 27 27 27 27 27 27 27	49. 2 54. 4 54. 2 54. 2 54. 2 52. 2 54. 4 53. 8 53. 8 49. 6 56. 1 55. 0 54. 2 52. 6 54. 2 53. 4 53. 4 53. 6	2 6 + .3 + .3 4 1 + .2 3 + .1 + .1 + .5 7 + .2 7 + .2 7 + .2 7 + .2 7 + .2 7 + .2 7 + .2 6 6 6 6 6 6 6 6	777 78 78 772 772 772 772 773 773 775 775 776 775 776 777 776 778 779 773 771 772 773 773 773 773 773 773 773 775 776 778 779 778 779 778 779 778 779 778 779 778 779 778 779 778 779 778 779 778 778	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	31b 41 41 426 32 32 32 32 32 32 32 32 32 32 32 32 32 32 3	29 29 29 29 29 29 29 29 29 29 29 29 29 2	28b 227 36b 30 37 32 38a 32 33 34 35 36 40 26 31 37 33 33 33 33 33 33 33 33 33 33 33 33	$\begin{array}{c} 2.659\\ 6.576\\ 6.3.80\\ 6$	11 + 1.21 12 + 2.91 + 1.19 + 3.42 12 + 4.15 + 3.00 + 1.96 + 2.24 + 3.40 + 3.38 90 90 90 90	1. 38 1. 43 1. 43 2. 33 1. 139 1. 100 96 1. 15 1. 39 1. 39 2. 25 2. 25 2. 25 2. 21 2. 21 2	000000000000000000000000000000000000000	11 12 12 11 12 10 11 11 13 11 11 12 13 11 11 12 12 11 11 11 12 13 11 11 12 13 11 11 12 13 11 11 11 12 13 11 11 12 13 11 11 11 11 12 13 13 11 11 11 12 13 13 14 15 16 17 18 18 18 18 18 18 18 18 18 18	10 12 12 10 8 8 15 8 9 9 10 10 10 8 8 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	10 8 6 8 13 13 10 10 9 9 12 10 10 8 11 11 11 11 10 12 13 7 7 8 11 11 10 10 8 9 5 7 7 5	11 11 13 13 10 11 14 13 10 11 11 12 15 13 14 12 11 12 13 14 12 11 13 14 12 13 14 12 13 14 14 11 11 11 11 12 13 14 14 15 16 17 18 18 18 18 18 18 18 18 18 18	n. n. nw. nw. nw. n. nw. n. nw. se. e. n. nw. nw. n. nw. nw. nw. nw. nw. nw.	B. H. Obert. U. S. Weather Bureau. John H. Eadie. Samuel J. Hixson. Dr. William H. Mitchell Foster Peer. Henry A. Jorden. D. S. B. McCoy. John H. Maskell. U. S. Weather Bureau. George S. Briggs. M. A. Butler. William T. Farley. George B. Thrasher. Brice E. Riker. William T. Farley. George B. Thrasher. Brice E. Riker. William T. Farley. George B. Thrasher. Brice E. Riker. William T. Farley. George B. Thrasher. Brice E. Riker. William T. Farley. George B. Thrasher. Hilliam F. Richardson. Orville Bassett. Ernst Wenger. Charles J. Bates. James Armstrong. Samuel K. Pearson, jr. Ralph Robertson. William R. Bowne. Warren C. Hursh. A. Sweetman. Benjamin B. Bobbitt. Charles L. Barker. John C. Beans. Prof. William F. Woerner. F. Vernon Losee. William I. Flick. Heber A. Probert. D. W. Smith. John Neagle. Lincoln Van Gilder. M. S. Taylor. Peter Hardcastle. Dr. William J. Chandle George Dymock. Frank R. Austin. Prof. H. A. Dodge.
West Virginia.		2,500 875	10	51.0	+ 2.3	75	6	23 28	25 25	37	5.05	+ 1.79	1.27	0	13	13	4 10	14	w.	Solomon Clark. J. W. Vandiver.
urlington, ranklin. ost City artinsburg. oorefield. oonney ⁴ pper Tract	Pendleton	435 900 824		53.6 55.0 57.8 54.4	+ 0.9 + 3.6 - 0.2 + 0.2	78 83 87 82 84 ^h	4 4 4 4	30 32 31 29 27 ^b	25 29 25 25 25	26 31 44 37 37 ^b	4.83 3.27 5.33 3.49	+ 1.99 + 0.83 + 3.34 + 1.27 + 1.68	1.55 1.36 1.75 1.04 1.00	0 0 0 0 0	9	10	4 4 16 10	12 10 8 7	W. W. nw. sw. W.	A. A. Martin. B. D. Hinegardner. G. W. Van Metre, C. E. John C. Fisher. John C. Linthicum. J. M. Mallow.
Maryland. Innapolis. Innapolis. Inlatimore. Inlatimor	Baltimore Dorchester Prince Georges Kent. Washington do Kent Prince Georges Allegany Harford Caroline Talbott Frederick Harford Frederick Allegany Washington do Baltimore Prince Georges St. Marys. Frederick Worcester St. Marys Somerset Montgomery Wieomico Calvert Frederick Queen Anne Montgomery Carroll Baltimore Harford Allegany	450 400 200 150 100 630 37 38 117 421 23 20 1, 200 65 320 450 465 1,000 860	13 12 3 14 17 18	59. 8 57. 2 54. 5 57. 9 57. 9 57. 9 58. 7 57. 4 49 56. 7 57. 0 56. 6 6 7 55. 6 6 7 55. 8 5 5 6 7 5 58. 8 5 5 6 7 5 54. 8 5 5 6 7 7 5 54. 3 8 5 5 6 7 7 5 54. 3 8 5 5 6 7 7 5 5 6 8 8 8 8 5 6 8 7 5 5 6 8 8 8 8 6 8 6 7 7 5 6 8 8 8 8 6 8 6 8 6 7 7 5 6 8 8 8 8 6 8 6 8 6 8 6 7 7 5 6 8 8 8 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8	+ 1.4 + 0.2 - 0.1 + 1.1 + 0.2 + 0.9 + 0.2 + 2.3 + 1.1 + 0.3 + 1.2 + 0.6 - 0.9 - 0.0 - 0.3 + 0.3	764 811 79 77 788 76 76 77 78 82 80 76 77 83 77 80 85 80 77 82 87 77 87 77 77 82 87 77 77 87 77 77 87 87 87 87 87 87 87	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	43 44 41 43 36 36 36 36 36 36 36 36 36 3	30 29 29 29 25 25 29 †25 29 †25 29 †14 29 14 29 14 29 14 29 125 29 14 29 14 29 25 29 25 29 25 29 25 29 20 20 20 20 20 20 20 20 20 20 20 20 20	244 266 333 322 244 372 373 386 356 352 299 209 322 322 322 332 246 351 266 351 267 267 277 277 277 277 382 283 293 293 293 293 293 293 293 293 293 29	3. 543 2. 633 2. 240 2. 297 3. 233 3. 339 3. 35 5. 44 117 2. 293 3. 14 2. 295 3. 3. 14 2. 295 3. 3. 11 3. 24 3. 3. 3. 44 0.5	+ 0. 29 + 0. 46 - 0. 36 - 0. 49 + 0. 18 + 0. 21 + 0. 70 + 1. 01 + 2. 14 + 0. 12 + 0. 54 + 0. 64 + 0. 66 + 0. 42 - 0. 49 - 0. 36 + 0. 36 + 1. 58 + 1. 58 + 1. 58	0. 78 1. 92 1. 33 1. 38 3. 0. 93 3. 0. 93 3. 1. 31 1. 38 2. 0. 93 1. 81 1. 757 1. 79 5. 1. 38 8. 1. 39 1. 0. 80 1. 26 6. 1. 90 2. 0. 00 1. 26 6. 1. 90 1. 0. 80 1. 30 1. 0. 80 1. 33 1. 75 2. 21 1. 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 1. 15 1. 15 1. 15 1. 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 11 100 77 5 122 11 12 11 77 78 8 12 77 77 8 8 11 14 11 11 13 13 13 14 11 11 11 11 11 11 11 11 11 11 11 11	77 122 8 14 11 18 18 18 12 16 13 17 2 15 19 15 14 12 16 15 11 15 6 18 10 12 11 10 14 18	9 8 8 12 2 2 3 3 5 3 3 17 4 4 8 2 2 2 5 5 18 8 11 1 1 1 0 0 1 1 1 1 1 1 0 0 1 1 1 1	122 144 9 8 8 133 111 122 133 116 122 133 166 164 122 130 166 133 166	nw. sw. n. se. nw. ne. s. nw. ne. nw. ne. nw. ne. nw. w. ne. w. ne. w. ne.	U. S. Naval Academy. U. S. Weather Bureau. T. E. Keenan. George Hartnell. M. W. Thomas. D. Paul Oswald. W. W. Prantz. J. S. Harris. Prof. H. J. Patterson. J. W. Frantz. Prof. A. F. Galbreath. H. B. Mason. Henry Shreve. Joseph M. Sheridan. J. H. Curtiss. Chas. S. Birely. R. A. Walter. E. G. Kinsell. J. A. Miller. Martin L. Dobler. Dr. T. M. Baldwin. Brother Fidelis J. H. Lawson. Hon. R. M. Stevenson. Mrs. Clara C. Hyatt. J. R. Stewart. Dr. G. E. Lewis. W. E. Downing. Dr. W. H. Marsh. Joseph V. Shimek. Jas. E. Higman. L. M. Mooers. James B. Galt. C. W. E. Treadwell. W. Benj. Ford. Prof. Geo. F. Morelock Rev. Jas. F. Dawson, is. F.

TABLE 1 .- Climatological data for October, 1911. District No. 1-Continued.

			years.	Tem	peratur	e, în	degre	es Fal	hrenl	heit.	Pre	cipitation	, in in	ches.	lays,		Sky		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, ye	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy of 0.01 inch or mo	Number of clear	Number of part-	Number of cloudy days.	Prevailing wind d	Observers.
Delaware.			1									-								
Delaware City	Kentdo	20 40 20 20 40	9 23 27 19 18	57. 1 57. 6 57. 3 56. 9 57. 8	+ 1.4 - 1.4 + 0.2 + 1.6	78 81 79 83 80	2 4 4 4 4	36 33 36 35 36	29 29 29 †14 †29	24 32 27 38 27	2.86 2.85 3.32 3.04 2.03	- 0.32 - 0.12 - 0.67 - 1.27	0.82 1.13 1.15 1.23 0.82	0 0 0 0 0	9 10 9 7 7	18 14 16 13 17	2 4 3 8 5	11 13 12 10 9	ne. nw. nw. se. ne.	H. Morton Price. Thos. F. Dunn. Chas. J. Holzmueller. Rev. L. W. Wells. E. B. Brown.
Washington	Dist. of Columbia.	112	41	57. 2	+ 0.6	80	4	38	26	29	4. 07	+ 0.98	1.93	0	11	12	7	12	n.	U. S. Weather Bureau.
Culpeper. Dale Enterprise. Eastville. Fredericksburg. Lincoln. Onancock Mount Weather Quantico. Staunton. Warsaw Woodstock	Culpeper Rockingham Northampton Spottsylvania Loudoun Accomack Loudoun Prince William Augusta Richmond Shenandoah	1,350 15 100 500 1,726 16 1,380 160 927	3 32 1 22 10 7 14 19 19	55. 8 56. 0 61. 9 58. 0 55. 9 52. 5 57. 0 56. 8 58. 2 57. 0	+ 1.1 + 1.1 + 0.8 - 0.2 + 1.0 + 1.3 + 1.1 + 0.8 + 1.2	80 88 86 82 78 84 75 82 82 81 87	4 4 4 4 4 4 4 4 4 4 7 2	33 27 41 34 32 35 35 35 35 35	29 25 †14 29 25 20 30 30 25 29	32 42 36 32 32 32 30 31 34 32 39	3.75 3.60 3.83 3.66 3.99 2.48 4.37 6.60 5.37 2.63 4.27	+ 0.78 + 0.06 + 0.09 + 0.95 + 1.95 + 2.29 - 0.68 + 1.55	1.73 1.31 1.82 1.40 1.70 0.90 2.13 3.42 1.54 1.20 0.90	0 0 0 0 0 0 0 0 0	8 12 8 11 8 6 15 6 10 8 12	10 7 12 13 6 21 8 11 9 4	13 6 10 11	9 12 9 9 12 4 13 9 10 7 8	nw. nw. nw. ne. nw. ne.	Col. H. C. Burrows. Rev. L. J. Heatwole. Thos. B. Robertson. S. G. Howison. Dr. Geo. Roberts. Spencer F. Rogers. U. S. Weather Bureau. Rich., Fdksbg., & Pot. R. R. Ernest Nothnagle. C. H. Constable. Mrs. A. G. Artz.

*, b, °, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 1, North Atlantic States.

Stations.	Watershed.														D	ny o	f mo	nth.															T
Stations.	W Beciniou.	1	2	3	4-	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	ta
Maine.																																	
land	St. John Coast Saco Penobecot Coast Kennebec		. 07	.12			. 86					. 02	.42				. 03			.10 .			. 20			.80	. 34	T.			T.		2
Harbor	Coast				. 85	T.							T.					70	T.	. 15		. 05	. 40	.30	****			. 20	T.			. 15	2
nish	Perobecot	.18	. 10		10	10		. 22					05	07		T.		T.	. 38	25	. 02	T 25	15	15				10			****	. 15	1
tport	Cosst		****	****	. 20	. 10		****		.02	****	****	.02	.00	****		T.	****	****	. 40		.02	41	. 48	****	****		.18				. 24	î
ıtis	Kennebec				. 21	.20								. 03					.03	.87			. 22	. 25		T.		.05	.01			.02	1
rfieldmington	do				. 25														*	.86			*	.57									
mington	do		01		. 61	.03													. 73	.71	.01	.01	40	.17				.17				.17	
dinerenville	.do		.01	****	.51	.00				.02			.13	****			****	****	. 68	. 23	.05	.06	.32	. 19	****			.14					
alton	St John	. 10			. 20	1000		1	a billion .	Sec.	12200	12.50	. 30			Trans at						3500		- 500								.30)
we Brook	Penobecot				. 40								. 25								1.20												
	Andr'se'g'in.	.02	. 03		. 64			.01					T.						. 61	. 32	.01	. 08	. 35	. 09	****			.08				.14	
lisonlinocket	Kennebec Penobscot				. 81	16								14					1.32	52		T	23	30	02		****	04	05			.10	
th Bridgton	Saco		.16		. 65	. 10		.06	****		****		.02	. 1.1			****	****	47	.72		. 05	.30	.11	.05			.16				.12	
109800	Andr'se'g'in.																																
no	Penobscot				.19	.16								.06						. 67		. 20	.18	. 41				.07					
ten	do Coast	****			. 23								.07			· · · ·	****		47	. 23		90	. 95	08	T.			.00				.01	
tland	St John	. 19	.00		. 30	****	.00	. 03	****	****			1.			1.		****	. 21	. 02	****	. 24	. 20	.00				.04				.14	1
mford Falls	St. John Andr'sc'g'in.				.56								T.					1	1.05	. 24	.02	. 05	.54	. 21			.37					.19)
Forks	Kennebec																																
nslow	do				. 36														*	1.01			*	.50				. 03				. 23	3
lew Hampshire.					1																		1										1
tead Center	Connecticut.	. 40	, 20		. 55	.04	T	.30		10.11			T						1.50	1.25	.10	. 23	.38	. 57				.01				. 21	1
iton	do	. 21			1. 26		.34												1.24	T.			. 25	. 20				.18				.33	3
hlehem	do	.11	.11		.72	.06		. 24					T.	. 04					. 86	. 24	. 26	T.	. 03	. 59				.11				. 33	3
okline	Merrimack	. 55			1.00		. 65	T.								. 25		.10	2.50	T.	T.	1.05	.10	T.				T.	1			T.	4
neord		90	31		44													4.4	1.00	. 04		. 00	2 W.E									. 27	7
nklin		.16	. 33	3	.59		T.	.36					T.	1	1	.00		****	1.30	.73	. 05	.58	. 41	. 25			1	.30				.14	
fton	do																																
nover	Connecticut.	. 12	.16		. 67		.11	. 13					T.					T.	. 81	. 89	. 03		.12	.30				. 05				. 56	1
ene	Merrimack	27	. 10		. 58	.03	T.	. 50		****			T.			05		00	1.63	.09	.08	.50	19	. 31				T.				. 30	2
wton	do	.17	7 .33	3	70		.38	.21										.03	. 60	.00	T.	.42	.16	.0				.05				T.	
mouth	do	.23	3 .21		. 97	.07		.21					T.					T.	.66	1.09	.19	T.	. 27	.24				.08				. 29	
Vermont.																	-																
oomfield	Connecticut.				51	.54							. 02						. 53	.36	.08		. 03	. 43	3			.11	.0	2		.12	
vendish	do								****											****			****										
ksonville	do	****	20	0 1 30	70		T	2 20				T	T		****			05	2 00	1 81			17									. 62	21
nchester	Hudson	.00	6 .04	5	. 20	9	.04	. 09				1.	1.					.00	1. 13	, 81		*	.09					.07	7			.37	7
Johnsbury	Connecticut.	. 20	0 .16	6	. 65	2	. 18	3	.06				T.						. 87	. 44	.10		.06	.5	7			.11	1			21	1
monodstock	do	. 68	8 .16	6	61	1	.50	. 40			.01								2.50	1.67	90	. 97	. 26	. 33	8			.00	5			. 38	8
Massachusetts.				1			. 000					1						****		2.11	. 40		.01			***						1.24	
	Commontlant	0	. ~		01			9 99				-						00	0 40	1 00		1 00	97					m	1			07	
hland	Merrimack	.0	6	6	2	8	.00	.53				T.				0		.03	3. 40	1.20	01	1.20	.88	.0.	3			0	2			.16	
kers Bridge	do		60	0	. 2	5		. 55								T.		.01	.53	. 28	.01	.71	.30						. i	0		T.	
dford	do	.13	2 .3	2	2	1	T.	. 59.								. 10	0 .02	.02	.39	.15	T.	. 69	.32	.0.	5			. 0.	5			01	1
ie Hill	Coast	.10	0 .6	4	3	4 .08	T.	. 61				T.				3	T.	.05	.06	.05	T.	.34	.27	.0				. 0	8 T.			. 01	
estnut Hill	do	6	3 0	4 0	4 4	2	46	8 07		****	1	T.	***			110	T.	00	27	1.	****	63	05			***		.0.	91			. 2	1
nton	Merrimack		8	8	3	2		. 69					.0	5			. 09		*	1.91	T.		*	.8	7			.0	9	1		0	4
hlersthlandkers Bridgedforde Hillstonesstnut Hillhtoneordll River	do	.10	0 .5	1	2	4		. 62				T.	T.			. 0	T.	.02	. 48	.33		. 60	.36	.0.	5			. 0	6 1.				
neordl River	Marrimool	.2	7 .3	3	. 13	1 70	.0	.35				- m	.01			. 3			1 20	.32		.03	.15					.0	11				-
mingham	de.	1.1	6	1	1 .2	1 T.	.1	.41	****			T.	T.			. 30	04	.03	1.37	.97	.03	*	.48	0.0	5							04	Ю
verhill	do	T.	53	2	3	1		43								. 0	3 .01	.01	. 28	.22		.32	. 21	.0	2			0	5			. T.	
ngham	Coast		73	2	. 3	5		60								5	7		.14	. 03	T.	.41	.19	T.				. T.					
annis ferson	do	-71	8		1	1		. 6								. 2				.16		1:	1.20	.3	6			. 0	1				
ke Cochituate	de de		0		4	4		· 04		.35						. 2		04	60	T			90	3.5	3				1			1	ò
wrence	do	*	.4	3	. 3	9		47								.0	T	.03	*	66	T	*	74	I O	3	1		0	6			00	8
minster	do	1.2	6 . 4	5	2	6	1.2	5 .38	3			T.	T.			. 2	3	.07	1.50	1.01	. 01	.44	. 49	1.1	0			. 0	1			0	14
wellldleboro	do		4	7	3	8	*	.71										*		1.07		.34	*	. 7	2			. 0	4			0)3
dleboro	Connecticut.		5 .5	5	2	5	.3	.30				T.	T.	•••		- 4	T.	T.	. 03	.05		.34	.08	1.1	4			00	0			0	15
tucket	Coast			8	3	2	.0	00	Mana a								114	5 A. A.	- 90	.02	. 06	.25	. 4	.1	7			.0.		* ***	: :::	0	ازر
w Bedford	do				2	0		41								60)		.10	.20		. 03		. 5	6								
rfolk	do	T.	.5	6	. 3	3 .06		8				T.				2	6 .07	T.	.11	. 57	. 63	1.14	. 21	T.				0	6 T.			. T.	. 1
mouth	Morrison		7	0	8	9		. 70					T.			. 6	T.		.00	.03			. 60	1 .1	2			.0	2			2	108
vincetown	Coast		7	6	5	2			3							20	9	2	T	T.		05	35	2 1	5			T				T	0
ekport	do		6	5	4	0		43	3							2	0	. 05	.35			56	.40					1	0				
tland	Connecticut.	. 6	8 .0	1	4	1		.54	1			. 0	2 .0	1		. 14	4	. 19	2.19	.06	. 01	. 91	.01	.1	4			. 0	3			0)7
nerset th Egremont	CORST	-	.5	4	2	1		47					. T.			3	9		*	.41		. *	.20	.1	1			0	6			4	16
at Pond	Const.	1.1	6	1 .1	5 .2	0	.3	7										.31	3. 20	.18		1. 42	.86	2				.0.	5			1	0
ringfield.	Connecticut	3 0	0.0 T	2 .0	1 .1	2	.4	. U4								1		T. 04	4 44	1.49		76	.00	8 .0				0.0	2			1 1	5
rling	Merrimack.		7	3	3	1		. 78	3							2	4		*	*	2, 2	i		9	5			T				. T.	15
mton	Coast		. 6	7	3	9		45				. T.	T.			5	5 T.			.14				.3	9			0	6			. T.	
in Egremont of Pond ringfield ringfield rings muton rners Falls stboro lliamstown nchendon rreester	Connecticut.		7	3	. 6	1		. 88					T.						1.74	2.39		. 43	.4	1 .3	6			- T.					
SLUOTO	Hudson	9	5 75	9	. 3	0	~ ~	0 3				T.	T.			0		00	1 45	1.30		1 20	. 98	0.0	4			0	1			2	28
liemstown																																	400

TABLE 2.—Daily precipitation for October, 1911. District No. 1—Continued.

Stations.	Watershed.									1	, tat				I	ay o	of mo	nth.										-				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Rhode Island.																															T (a)	
ock Island		.58			.04		.05	. 22				T.		70		.42 .37 .20	T.		1.04	.36	7.	.26	.24	.13				T.				.14
eene	do		.74		.16			. 44								.20		T.	•	1.15			.70	.07				.01		****		. 18 T.
ope Valley	do	.16	.95		. 29			. 35								. 54			1.04 1.95		••••	.09	.78	.15	0-00						1	T.
ingston arragansett Pier wtucket	do	.16	.72		.12			.30					T			. 26		. 05	1.05	.16	. 05	.06	.31	. 20								
ovidence	do	.27	.40	3	.14			.50					T.			. 40		T.	.51	.09		. 13	. 20	. 0%				.01				.02
Connecticut.	do	.70			.38	••••		.41			••••			••••	••••	.12	••••	.08	1.09	••••	••••	. 65	••••	.06	• • • • • • • • • • • • • • • • • • • •			••••	••••		••••	. 21
idgeport	Coast Connecticut. Coast Housatonic. Coast Housatonic. Connecticut. Housatonic. Coast	.77	.75		.08		т.	. 58				T.							2.47	1.75	T.	.19	.08	.34				T.	T.			T.
ntonlchester	Connecticut.	1.45	T.		.24	••••		.35			••••				••••			T.	2.47 1.60	6.64		10	. 58	. 29				T. T.			****	.03 T.
am Hill	Housatonie.	. 60	.17		.16			.32				.02						.13	1.90	. 72	,	. 55	78				1					15
nielsonlls Village	Housatonic .	.83	.00		.30	.05	.14	.34		,	. 8	.02				Т.		.03	2.50	. 20	T.	.55	. 25	.48		• • • •		T.	****	****		.02
rtfordwieyville	Connecticut.	47	1.22	2	. 23		. 05	.34				T.						. 03	4.01	.77		. 24	.17	. 23				. 03		****		.01
ke Konomoc w Haven	Coast	. 10	.75			.16		.20										.04	1.00 4.13	1.70	.05		. 45									****
w Haven w London	do	1.36	. 69		.07		.14	. 25				1			1				4.13 1.10	. 54	****	.35	.10	. 20				T.	****		****	T.
Grosvenor Dale	do		. 27		.12			.32										.04	. 46	. 46 4. 95		. 40	.30	.07								
rwelkuthington	do	.05	1.50		.16	T.		. 40										T.	1.50	4.95 3.85	.10	.40	.30	.89		****	****	T.	T.			.04 T.
uthington. uth Manchester orrs.	Connecticut.	*	- 40		*	.18 T.		. 60											1.52	2.06	T.	.58	. 25									· · · ·
luntown	do																															1.
allingford	Housatonie	1.32	1.26		. 25		.44	. 04											3.69 2.00			.57	.20	97				.01				.13 T.
st Simsbury			1.08		.22			.42										T.		6. 48		.27	*	1.07				T.				.04
New York.							-							-	-												-					
disonany	Hudson	. 70	.04		. 22	T.	.11	. 55				T.					. 03	T.	. 34 2. 31	.30		. 25	.40	.11				.07			****	. 30
redsterdam	Susq'hanna	. 65	. 04	1	.52		. 02	.77										10001	. 40					.18				.07				. 60
nens	Mohawk Hudson	. 62	.16	3	.12			. 52				T.				T.		T.	1.80 1.94	1.26	. 25 T.	. 76	.10	. 62				T.				- 22
lston Lake	Susq'hanna.		. 61		. 64		*	. 64				T.	T.			70		T.	2.16	. 56	.07	.09	.16	. 53	T.			.00				. 33
ghamton e Ridge	Hudson		. 15	T.		1.28	. 38							Icea					. 69	*	2. 15	. 08		. 55				. 05				
uckville	Susq'hanna	. 45	.06	3	.20	.02		. 48				. 19	. 04						.74		.10		. 03	. 61				.12				
mel []atham	do	. 31	. 29	3	. 20			. 29	. 03			. 03							1.46	. 34		. 22	. 60	. 71				. 02				. 03
perstown	Susq'hanna, Hudson	. 64	.90		. 41		. 49					.13				. 04			1.32	.12	.04											
tland	Susq'hanna.	58			. 42	. 05		. 55				.34	. 03						.73	. 03	. 03			.59				.14				. 62
tchogue Ruyter	Coast	63	1. 15		.02		.04	.78				32	T.			. 03	T	Т.	1.50	. 65		.08	. 35	.40				.ii				. 45
ns Falls	do	. 46	. 29		. 60		. 15	.72				. 05							2, 48	.58	.14	.02	. 15	. 52				. 09				. 44
versville	Mohawk Susq'hanna.	. 53	.11	2	.92	.10	. 32	. 62			****					.30		****	$\frac{2.00}{1.05}$. 34	.30	. 38	.16	.73				.08	.08			.72
eene eenfield Center	Hudsondo	. 43	.17		.50			. 69											2.50 1.98	. 55	.11	.11	.28	. 68				.10				. 44
ffin Corners	Delaware	. 63			.50	T.						T.							1.10	.09	T.	.03	.06	. 66				.10				. 47
neock skinville	Susq'hanna.		1.05		.35	. 25	.24	. 73				. 22	. 05				. 10			1.52		.12	.10	. 49			. 05					. 60
mer	do	53	. 05	5	.33	T.	.25	. 20				. 28							.57	. 05	T.	T.	.12	.34				.10				.55
osick Falls	Hudsondo		. 44		1 05	. 21	.10	.76					T.						1.00	1.80	. 07		. 20						.13			. 08
ersonville	Delaware	1.00			.14		T.	. 65				. 18		1		. 08		T.	1.48	.16	T.	.28	T.	. 80				. 03				. 31
owelhurst	Hudson Delaware	55	1.17		.68		.07	. 81				50						1.50	2.10 1.00	.51	.06	. 30	.30									.40
tle Falls	Mohawk	. 37			.70	T.	.24	. 23				T.						1.00	. 54	. 04	.02	. 20	.12	.90				.14				.74
chanicsville	Hudsondo			58	.04	.07	.83	1. 35				T.	::::					1.30	1.48 3.40	$\frac{.12}{1.72}$.20	1.47	.12 .77 .70	• • • •				. 05			T.	. 25
rehouseville	Mohawk	30)		1.05	. 13		. 15											1.03	. 30	. 40	. 25	. 20	. 70			T.					. 62
rrisvilleunt Hope	Susq'hanna.	1.10	.51		.20	.00		.58										.18	2.10	1.70	1.10	.80	.40				T.	.08				. 23
unt Hope wark Valley w Berlin	. Susq'nanna.	90			. 19		. 45	. 24				. 44				T.				.04				. 17								.49
w Lisbon	Susq'hanna	58			. 60		.04	.52				. 24	L			.01			. 92		. 16	.18	.02	.78				iii			****	.52
w York City rth Creek	Coast Hudson	97	. 13		.01	.15	. 46	.44								. 02		T.	1.29	1.80	T.	.42	.27									T.
rthville	do	35		50			.70											1.20	1.08	. 22		28	52			100					.50	
eonta	Susq'hanna.	53	.00				.09	.43				.13	T.			. 01			1.03	OF	00	.13	.06 .13 .10	.72				. 08				. 65
fordster Bay	Coast	. 1. 81			. 02			.71											.98 1.61 1.96	.96	.06	.20	.10									
t Jervis	Delaware Mohawk	. 72	. 2	2	1.10							. 15						Т.	1.96 1.47	- 38	.35	.78	.08	.51				.01				. 04
isbury	do	74	T.		1.04		. 22	.14											.84	.11	.12	.11	.13	1.61				.10				. 84
rsdaleauket	. Coastdo	60	1.17	8	.02		. 20 T.	. 63				T.						T.	1.75	1.38	.15	.10	.25	. 38				T.		****		T.
erburne	. Susq'hanna		. 63	3	. 35								. 2	3				700		.90		****	.11	.74								.58
ithamptonler Falls	Coast Hudson	67	1.31				.02					.02			****	. 00		Т.	2.70	. 66	.01	. 31	. 28	. 18				****	****			.39
enton Falls	. Mohawk	. T.	. 31	1	.14	1.00		. 73											.73	. 15	. 07	. 05	.28	. 93								
ibeshill ica	do			0			. 40	. 54		1		. 47						T.	.50	. 15	2.00	. 20		. 95				.13	.10			. 60
ica	. Coast	25	1. 60	0	. 03			.76			70						1		2. 20	1.65	. 05	. 15	.18	. 15								.12
appingers Falls	Hudsondo	. 6	.24	0	.12		. 24	1.00			T.	1.18	2					.00	. 10	1. 20	.32	1.00	.18 .62 .10 .06	. 41				. 04				. 13
averly	do Susq'hanna	89	.0	4	. 03		. 03	. 52				58	3						. 94	.02	.00	.04	.06	. 31	.01	.01	1	.00	. 01			.13
est Berne	Hudson Mohawk	53	.20	9	.70		T.	.51				.0	5					****	1. 15	.57	.10	.12	.11	. 27				.06				. 11
est Point	. Hudson	. 1.40)			l		1.14				. 12	3			1	1	1	1.20	3.36		1 .80	1.20	- 46	U	1	1	1	1	1	1	T.

Table 2.—Daily precipitation for October, 1911. District No. 1—Continued.

Stations.	Watershed.	-		-	-	,										/ay	OR 1116	onth.											1	1	(-
Otadous	W distance.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Pennsylvania.									-			1																,				100
toons	Susque'na		1.14		. 11			. 67				. 13				. 14			. 50		T.			. 51								. 02
nsonia	do	3 12	. 66		12	.07	1. 20	. 68		****	25	.31		. 13		****	****	. 60	. 68	.01		****	. 62	. 24				****			****	T.
ethlehem	Lehigh	. 32	2.51					.71				.28				. 20			1.44	. 25	T.	. 57	. 20	. 75								
rowers Lock	Schuylkill	. 52						. 17				. 40							1.11	.06	.08	- 40	. 32	. 07							05	10
atawissa	Susque'na	1. 50	1.80		T.		- 34	1 . 88				.18				. 15		. 30	. 80	.10	.01	.11										. 50
learfield	do	1.31	.98		. 12			.90				.14						.30	. 43				. 05	. 12				T.			. 04	
oatesville	Coast Schuylkill				. 02			. 25				. 35		****		67		****	1.98	. 05	.10		1.35							****		
rifton	Susque'na	.85	. 50		.08	T.	T.	.30				.30				. 07			1.50	.10	.12	.80	. 50	.30								. 08
mporium	do	1.15		. 04	. 15						. 02					. 14		. 44	. 51				. 15					T.			T.	. 24
phrataverett	Juniata						.16									. 26					.14	. 93	60	.06		****			T.			. 02
orks of Neshaminy	Delaware		1.00		. 40			. 49				. 40				. 15			. 64	. 27	.06	. 62	. 28	. 66								
eorge School	do	. 19	. 85					- 48				. 36				. 21			. 78	.10	.01	. 41	. 02							****		. 02
ettysburg	Potomac Susque'na	2 15	. 21	****	T.			25	****							.11	•	. 55	1.60	. 26	. 12 T.	. 68		25				T.			T.	. 18
ordon	do		3.32		. 04			. 53				.04				. 09	.01		1.78	. 14	.15	. 22	. 34	. 76								
amburg	Schuylkill Susque'na	5.00	. 61		.04			. 37				90			****		m.	1.75 1.01	1.20		. 07	.15	.25									T.
anoverarrisburg	do		T.	T.	Т.		T.	. 38			. 01	.30				T.		. 37			.03											. 02
untingdon	Juniata	. 20	. 86		. 07			. 90				.14				. 20			. 85		. 02		. 15	. 39							· · · ·	. 12
yndmanennett Square	Potomac Coast		. 42		. 04	****	T.	. 35			. 32				. 17	. 21		. 54	. 50 1. 44		. 29	.40	. 59								T.	. 08
ncaster	Susque'na	. 80					. 20					. 43				. 06			.90		. 09	. 31	. 96									T.
nsdale	Schuvikili	. 34	. 87					. 18								. 30		70	. 85		. 05											
wrenceville	Susque'na		. 46	****	. 10	****	****			****	****					.05		T.	1.00	. 04	. 25	T.									T.	.04
Roy	do	. 60	. 11		. 30		T.	. 33				. 41				T.			. 95	. 03	. 03	. 01	. 05	. 38				. 03				. 16
wisburg	do	1.04	. 78	.09	.06		.25				.20	. 26						19	1.74		.10											. 21
oyd ck Haven	do	1. 66	****	. 04			T.				. 20					. 09		13	. 55		. 02											. 26
arion	Potomac	. 12	. 20		. 05			. 45				.30				. 07			1. 20		. 06		. 31	. 32					10000			T.
meh Chunk	Lehigh Juniata	. 77	. 65		.08							. 45								. 03	. 03										****	. 20
lford	Delaware	. 55			. 15		T.									. 03			2. 21	. 21	. 06											. 02
ntrose	Susque'na		. 97		. 05												T.	T.	1.00	. 10		. 15										. 55
untain House	Juniata Susque'na	. 45	. 50		. 16		****				****					. 07	T.	.04					.42								T.	. 12 T.
w Germantown	do	.17			. 02							. 24						1.25			. 08	. 07	1. 25									
tsville	Delaware	. 53			· · · · ·		. 63									. 15				. 22		. 76		. 40							****	T.
iladelphia (1)	do	. 27			T.		. 04					. 39				. 18		. 01		. 24	.17 T.	.76	.79									T.
int Pleasant	do		1.47					. 58				.37				. 15			1.35	. 31	. 07	. 63	. 23	. 34								
ttsville		2.64		70	· · · ·		. 26								****	.08			1.72	.17				.27						••••		.06 T.
ading	Susane'na	. 83	1.22	T.	T.	.11	. 07	. 18								.00		. 21	. 89	.08	.09	. 14	. 57	.23			****			****	0000	.05
ranton	Susque'na	1.02	T.		. 11		. 26	. 04				. 43			10000	. 02		. 05	. 94	. 04	T.	. 38	. 44	. 17								. 08
sholtsville	Schuylkill Susque'na	. 73	. 84					. 53				.37				. 21					.14	.39		. 47								.10
insgrove	Schuvlkill						****	.20								. 24			1. 20	. 25				. 60								
niths Corners	do	.60	1.17					. 59				. 49				. 14			1.46	. 26	.08	. 62	. 18	. 39								
ring Mount	Susque'na	. 51	. 86		.04			1.04								.17		.15	1.46	. 01	.06	. 46 T.	. 19	. 36				****			T.	.12
roudsburg	Delaware	. 44	. 91		. 03		. 00									.16			2. 11	. 13	. 05	. 75		.80				. 02				. 01
wanda	Susque'na				. 02		. 01									. 02			. 89					. 34				T.				.11
elkertellsboro	do				. 05		. 88											1.18	.70		. 05	.08		.18			****	.03			.15	. 28
est Chester	Coast	. 25	. 06					. 25				. 42	.02			. 29		.02	1.32	.17	. 07	. 35	. 31	.70								
ilkes-Barre	Susque'na		1.00		T.	. 14		. 26				. 32				.02				.08	.06	. 23	. 30	. 40				.04				T.
Illamsport	go		1. 21		. 19			. 34				. 17			****	. 02			1.03	****	. 05	.01	. 00	. 00			****	****				. 10
New Jersey.																																
bury Park	Coast	.04	1.34					1.02				. 45				.14			1.25	.44	.14	. 97	.09	. 40								
lantic City	do		. 04				T.	. 22				. 28				. 03			. 64	.04	. 18	. 21	. 04	. 31								. 59
yonne	do	. 56	. 88		. 01	-	T.	. 87				.15				. 02		. 02	1. 45	1.09	T.	. 69	. 02	. 83								
lviderergen Point	Delaware	. 46			. 05			. 40			****	. 49				T.		T.	1. 68	1.40	.07	.86	.10									T.
onton	Passaic		1.39			T.		1.03				. 31					.07		1.05	1.29	. 20	. 19	. 41	. 36								
idgeton	Coast	.15			T.		***	.14				.30				.15			.85	.08	.04	28	1.10							****		. 05
pe May City	do	.01	.16		.06			. 08				.39				. 04		.04	. 92	. 03	.16	. 25	. 03	. 40								. 04
arlotteburg	Passaic		1.15		.06			. 95				.18							*	3. 27	.16	. 95	. 46									
athamyton	Coast		1.30			T.		.80				. 20	.10			. 20			.90		.85	.20	. 50	.00								****
llege Farm	do	. 05	2. 20		T.			.85				.30				.17			1.11	. 40	.16	. 40	. 07	. 93								
lvers Lake	Delaware	. 68			. 05		T.	.85								. 02			3.49	. 20	.08	$1.27 \\ 1.27$	19	.70								T.
ver	Passaic	.18	1.39		.02			-74			****	1.05				.13			1.05	. 46	. 03	.80	. 08	. 62								****
ddonfield	Delaware	.10	.18		. 02			.30				. 33				. 22		T.	.60	.36	.09	. 48	. 35	. 33								
mmonton	Coast		. 15					. 25				. 29				. 20			1.09	.16	*	*	. 56	. 67								
ghtstown	Delaware	1.38	1.11		T.		. 25	. 35				.11				T.		т.	1.14	1.75	.09 T.	.33	.60	. 57			****	.02				T.
lian Mills	do	T.	. 28		T.			. 28				.30				. 20						. 40	. 05	. 60								
sev City	do	. 55	. 73		T.		T.	1.03			0.000	.13				01		T.	1 60	27	T	. 40	.15	. 79				T.				
kewood mbertville	Delaware	.11	1.34		.02	****		. 49								. 13			. 87	. 20	. 04	. 54	.81	. 29								
yton	do	.70	. 27		.07		. 04	. 64				.75				. 02			2. 50	.17	.07	. 76	. 04	. 65								
tle Falls	Passaic	1.38	. 03		T.		. 68					.21				. 03			1.80	1.31	. 04	.48	.30	.20								T.
ng Branch	Coast Passaic	T.	2.01		.10	****		1.30								. 07	T.		. 88	2, 12	.24	.81	. 07	. 45								
orestown	Delaware	.06	. 35		T.			. 20				. 45				. 23		T.	. 88 . 77	. 22	.02	. 66	. 02	.78								T.
wark	Passaic	1.53	.06		. 01		. 50					.15				.02			2.321	1. 15	. 01	. 29	.30	. 68								
w Brunswick	Coast Delaware	.51	2.25		T.	****		.80				.27	****		****	.12			1.67	.20	.02	1.37	1.00	.06						****	****	. 01
rthfield	Coast	.04	. 16					. 25				. 35				. 08		T.	.72	.05	.17	. 48	.02	. 45								
terson	Passaic	. 51	. 83		T.			1.25				.18				T.		T.	1,55	1.00	. 05	. 56	.06	. 40								· m
illipsburg	Delaware	1.87	. 08		.02		. 25	. 52	****			.27				. 23		Т.	1. 20	1.26	.11	. 66	.41	. 33				****				T. T.
MARKET WALLES OF THE PARTY OF T	do	4.00	. 06		. 00		. 00					.24				- 40					.11	- 00	.02	47								-

TABLE 2.—Daily precipitation for October, 1911. District No. 1—Continued.

Stations.	Watershed.														I	ay o	f mo	nth.															To
Stations.	wateraned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29.	30	31	tal
New Jersey—Con.			100														100				V.			10	7777								
ompton Plains	Passaic		1.21		T.	. 02		1.02	-			. 28					T.		. 96	1.21	.11	.14	. 54	. 45									5.9
omerville	Coast	. 25	1.73		T			75				20	4.000			20	100		1 05	90	0.9	- 80	0.5	. 60				T.					6.4
outh Orange	Hudson	. 53	1.25		T.			. 91	****			.18	T.			. 02		T.	1.50	1.45	.02	.80 .26 1.12	.02	. 50				.08				T,	6. 1 5. 8
uckerton	Coast		.12					.07				. 31				. 13		. 02	. 83	1. 45 .28 .09 .05	.11	. 63	. 05	. 40								T.	2.7
oodbine	αο	T.	.21		T.	••••		.16	• • • • •	••••		. 35		• • • •		.10			. 95	. 05	. 14	.40	T.	. 48								Т.	2.1
and the second second	Potomee	19	1 07		00			1 97	m	5.8	90	00		10		***		20		01			90	T							T	007	
arlington	do	.60	1.00	T.	.00			. 25	1		.30	. 20	1.	. 10	*	. 47	1131	. 98	. 04	.01			. 35									.01	3.
arpers Ferry	do		.22		. 21		1	. 08	. 25									T.	1.90		T.		40	. 62									3.
artinsburg	do	.25	.26	.12	. 12			. 22			. 25	. 20	••••		. 20	.16		1. 55	1.36		. 05		. 55									.05	3.
ayard urlington arpers Ferry ost City artinsburg oorefield omney pper Tract	do		. 45	.29	T.			1.75	T.	. 23		. 25				. 33		. 25	1.51				. 27										5.
pper Tract	do		. 60	.05	T.			. 25	.10		.15	.20	.10	****		.70	••••	.15	1.00		****	****	T.	. 15			****				****	.01	3.
Maryland.																														1			
napolis	Coast	T.	.12		T.			.28	200			.00	T.	200	.09	T.	.02	T.	. 78	00	.02	.16	.18	. 56									2.
dtimore	do	. 08	.14	T.				.07			.01	.18				.07		.33	1.59	T.	.03	.17	.59	.05								T.	3
mbridge			.38									.28				. 29	10	· m	. 91			.36	14	1.33									3.
estertown	do	1 15	20		1-2-2	1	1	1.5				.16				.15			. 67	.03	.10	.10	.03	. 83									2.
ewsvilleear Spring	Potomae	1 26	08	T.				. 13				.21				. 09		. 93			. 01	. 03	.72						****			Ti	2
leman	do	. 08	.15	.03	.11			. 12	.10			. 15			Land !	. 18		0.00	. 95		- 08	. 43	. 84					.01		1		1	3
llege Park	do		. 60					.30				.17					.03		2.00					. 75									. 3.
rlington	Coast	.0	30	.05 T.	T.			1.06	.03	• • • • •		.30	.20	••••		.35	.10		1.81	T.	.15	.59	. 25	. 70			****	****			****		3 5
nton	do	m	99			1		90									. 50		. 57	T.	.04	.32		1.46									. 3
ston	Potomac				1000	10000		44				. 25				. 25		1 70	.75			.09		1.57			****			****			3
llston	Coast	.21	.12		.04			.10				.31				.13		T.	1.95	. 05	.04	. 47	.01	. 89									. 4
ederickostburg	Potomac	. 00	.35	T.	.06			. 07	T.		∵ii	.31				.07		.08	1.38	Т.	.10	.07	.33	. 38								T.	3
een sn'g rurnaca.	do		1 26		111		1	1 16				. 25				.13		T.	1.26			.02	.27	. 21					V				2
edysville ke Montebello	Coast	.02	.27	·	.10			.10				. 28				.08		.04	1.26		. 03	.02	.31	.42								T.	2
surel		. 0	.31									.15	T.		****	T.	T.	T.	1.90	.01 2.00	T.	.32	.16	. 65		1				1	Lucia.		3
onardtown	do							. 70	.04			.10				.11			. 65	T.	.01	.12		1.41									. 3.
onrovia ecomoke City	Potomae Coast	.0	.30		.04			.10	.01			.22				.08		T.	1.37	Т.	. 06	.10	.24	.38									2
eto Pollo	do ·								1	1	00		10		17.7							. 10		1.30				1					. 3
incess Anne	Potomee		00					.93				.17						T.	1.08	.02	. 07	.12	.03	.37									. 3
lisbury	Coast		08	.02				.48			****	.78				.03			1.00	.02	.01	.36	T.	.37						1			3
lomons	do		.11		T.			. 67				.15				.17		.01	. 19	.01	.01	.17	.42	. 64									. 2
incess Anne ckville lisbury lomons ate Sanatorium delersville	Coast	0	20		.00	1		117	.01			25				16	.02	T.	1.43	.01	.10	.10	.27	. 40		1				****	1	T.	3
koma Park neytown	do		09	.08	.03			. 01	.35													90	04	63				1		1	1000		1 2
wson	do	1.0	119	T				- 04				20	1		1	0.4			9 72	THE .	COS	.10	.16	. 80									. 3
n Ribbar	do	11 0	41 14				4	0.6	1							.05			2, 21	.11	.00	.44	.63	.30									. 5
esternport	Potomac	,3	30	. 02	.23			. 54			. 53	95			. 33	.04		1.15	1 2	T.		10	.12	97							. 03		3
esternportestminsteroodstock	do	T.	.2	3	.02			.01	T.	T.		.23	T.			.13	T.		1.04	T.	T.	.13	:18	. 24									2
Delaware.					176				1				-							1													
alaware City	Coast	0	2 .1		T.			. 06				.32				.39			.78	T.	T.	.12	.13	.82									. 2
overilford	do	.0	0 .2	06				00				32				.05			.10	.10	.15	1 15	1.13	49									. 3
illsboroaford																				.05													. 3
District of Columbia.			1.						1			.20							.04	.01	1.									1			-
ashington	Coast		2 1		-		1				01	10				00	-	75	1 10	m	01	200	70	m								T.	4
	Coast	1.,		1.	1.			00	1		.01	.10				.04	1.	.10	1.10	1.	.01	.00	.10	1.				1				1.	1
Virginia.	Pannahinila					1										000				18										1	1.		
ale Enterprise	Rappah'n'k Shenandoah	0	1 .1	1 .00	3 .0	4		0	i		.00		.43	3	110	.40		1.73		T.			.57	.10	·								3
astvilleredericksburg	Coast Rappah'n'k	T	4	5				60	1.13	3	70	.20	.12			99		T	1.8		T.	0	10	.4]					.07			T.	3
incolnount Weather	Potomac	3	0 .4	0				6	0			1.13				.13			1.70		.06		. 67										. 3
ount Weather	Coast Potomae Shenandoah	1	3 .2	7 .0	.03	0		6			.10	.17	T.		.08	.00		2.05	.08	T.	. 02	.02	. 63									. 01	1 4
uantico	Potomae		1	7				4	7			.10	.00	****		44			2.10		****	.10		3 45					****			****	6
aunton	Shenandoah	0	6 .1	9 .00	3			. 1.2	5		. 20		.25	5	. 42	1.00	T.	1.54		3			.35										. 3
arsaw	Rappah'n'k Shenandoah	- I	1						. 9							.00			. 42					1.20							. I.		- 2

^{*} Precipitation included in that of the next measurement.

‡ Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3 .- Maximum and minimum temperatures at selected stations for October, 1911. District No. 1, North Atlantic States.

						Mi	ine.				A STATE	5 50	0				y	fassac	husett	8.			Pro	ovi-		Conne	etieut.	
Date.	East	port	Gree	nville.	Or	ono.	Port	land.	Pre Is	sque ie.		pford alls.		eord, H.	Amb	erst.	Bos	ston.						ice,	Cre Hi		Hart	ford.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1 2 3 4 5	52 52 49 56 60	37 42 34 39 42	52 53 51 50 54	37 -37 30 25 40	56 57 58 56 56 58	47 41 27 26 46	56 89 55 63 62	41 44 38 44 46	56 54 50 45 52	28 24 24 24 40	57 59 54 56 56	37 40 31 31 42	52 57 59 65 58	36 42 31 37 45	54 56 62 67 60	38 43 36 47 42	57 55 56 68 63	54 48 42 50 49	58 52 59 64 66	53 46 35 36 51	58 57 55 64 65	50 47 44 46 50	58 53 60 68 62	43 47 41 48 47	60 58 59 58 63	42 35 40 44 42	57 55 61 67 62	4 3 4
6 7 8 9	46 48 54 59 58	34 36 34 45 38	44 45 51 59 68	31 28 32 45 29	52 51 57 61 66	32 32 25 24 24	52 52 56 67 71	38 37 35 42 42	48 47 52 68 62	31 23 25 38 20	48 54 54 62 67	36 32 27 38 31	48 53 55 67 69	34 34 26 32 33	52 52 63 72 72	38 35 28 36 34	58 48 58 71 63	40 38 37 45 48	57 50 57 68 69	39 42 29 34 32	53 48 56 63 66	47 46 46 48 51	58 46 58 70 67	42 39 35 44 45	54 49 58 66 68	37 38 29 34 45	58 44 59 70 71	3 3 4
11 12 13 14	68 55 44 51 59	47 42 37 38 44	71 64 44 52 65	49 44 35 33 39	71 78 66 56 62	36 45 37 33 28	70 71 54 58 60	45 47 40 38 40	71 55 54 69	43 35 32 34	70 67 50 58 62	46 46 40 33 31	65 70 54 64 62	35 42 39 31 33	62 69 58 64 68	42 41 31 30 37	65 73 57 64 58	51 52 43 43 49	65 72 65 62 66	37 44 39 27 34	60 66 53 59 66	52 53 46 47 49	66 70 58 62 61	48 52 41 39 42	62 63 54 62 59	51 47 29 40 42	67 68 58 65 63	4 4 2 4
16 17 18 19 20	58 48 49 49 52	43 39 44 47 47	63 53 45 47 50	33 30 37 42 45	65 71 57 60 55	38 33 34 44 45	64 52 52 53 53	49 44 50 51 49	62 52 51 50 50	30 24 34 42 44	68 52 49 52 55	34 42 44 47 48	70 48 52 55 57	42 39 48 50 48	72 54 56 58 57	42 38 50 53 49	60 54 56 57 56	51 51 52 54 51	62 55 59 59 56	52 41 48 55 53	56 56 58 57 54	52 49 49 54 52	65 55 58 60 56	50 48 48 55 52	68 62 57 56 55	36 53 52 50 49	69 57 65 62 60	4 4 5 8 8
21 22 23 24 25	58 57 58 58 48	49 52 48 43 37	50 60 60 51 51	44 48 38 29 29	67 62 62 64 58	34 51 51 35 27	53 58 61 60 52	47 53 48 42 36	56 60 63 52	44 52 45 24	54 60 59 54 53	49 51 38 33 30	53 59 61 58 55	48 51 37 32 28	54 62 63 59 60	48 53 40 32 28	56 66 65 61 54	51 55 51 45 41	56 67 65 65 59	52 53 56 33 30	62 70 64 60 55	53 59 53 49 46	54 65 64 59 59	50 53 47 43 38	54 60 59 56 54	50 50 48 37 31	55 63 62 58 61	5 4 4 3
26 27 28 29 30	53 46 36 48 48 51	42 32 29 33 40 44	53 42 37 47 48 43	33 30 20 22 32 32 30	57 61 41 51 49 53	31 32 22 23 31 29	58 45 43 54 56 52	41 37 31 28 36 40			59 39 42 50 48 45	35 36 28 22 33 37	64 43 44 55 56 48	32 35 29 23 35 36	63 47 46 56 59 58	32 35 28 24 35 38	62 54 45 57 60 61	45 42 34 36 40 47	64 59 47 55 60	32 34 32 20 28 35	61 61 47 54 58	49 46 38 37 46 46	63 58 46 55 60 61	42 42 34 29 38 44	63 55 49 51 55 56	38 36 22 27 34 38	64 53 46 55 61 60	3 4 3 3 3 4
Mns	52.4	40.6	52. 2	34.7	59.1	34.3	56.9	41.9	55. 6h	33. Oh	52.3	36.8	57.3	36.9		38. 2	57.3	46.0	60.6	39.1	58.8	48.4	59.8	44.1	58.2	40.2	60.5	43.
	New E							New ?	York.				1						P	58 53 58 55 56 57 56 64 36 65 37 60 32 66 34 66 65 57 56 53 54 66 65 57 56 65 33 60 32 66 65 57 56 65 33 60 65 57 56 65 33 60 65 56 65 65 66 65 65 66 65 65 66 65 65						Atla		
Date.	Cor	an.	Add	ison.	Alb	any.	Bing	ham- n.	Ind		Little	Falls.	New	York.	Ever	rett.	Han				Serar	nton.	State		Wells	boro.	City,	N. J.
	Msx.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	60 59 60 70 65	44 46 41 55 48	52 61 62 82 66	40 47 34 54 43	53 58 55 65 58	45 44 38 51 46	52 54 59 75 54	41 42 33 54 42	52 57 59 69 66	29 35 26 37 36	45 60 55 70 62	38 41 33 44 42	61 61 60 72 68	50 48 48 56 48	70 69 56 78 70	46 42 43 52 49	62 64 62 79 63	46 48 46 57 52	66 68 64 76 71	53 47 57	54 59 74	42 41 37 52 44	57 59 59 77 65	43 48 40 52 47	52 57 61 79 71	48 46 32 51 44	68 70 64 73 71	47 54 55 61 50
6 7 8 9	60 46 58 70 68	43 39 36 42 47	51 52 66 71 78	37 39 29 30 38	48 52 61 70 69	40 37 33 40 40	52 49 58 65 70	39 37 31 32 38	45 47 53 61 69	27 30 24 45 29	48 54 55 62 69	35 32 28 37 40	59 57 59 67 69	46 44 41 44 57	64 73 72 67 65	40 47 35 39 45	62 57 62 66 69	49 46 40 41 44	63 58 61 70 73	47 43 48	48 58 65	41 41 33 35 40	60 56 60 65 67	41 44 32 32 38	51 52 64 68 69	39 38 28 28 35	63 65 57 69 69	41 41 50
11 12 13 14 15	66 69 59 63 63	50 54 43 40 44	60 68 63 72 69	38 47 33 30 48	60 68 58 61 65	47 49 41 38 43	59 62 53 65 55	49 46 36 30 46	62 60 55 66 62	31 -46 31 22 27	60 60 53 59 59	47 49 32 32 44	68 63 63 62	54 53 46 46 53	67 61 66 64 61	55 48 45 36 48	73 66 62 63 54	57 53 44 41 51	61 69 64 65 57	56 47 47	63 63 56 68 56	51 49 40 34 49	67 61 62 60 63	55 48 34 35 38	64 65 61 68 62	50 43 35 29 47	62 69 63 62 65	56 56 46 42 55
16 17 18 19	71 58 63 63 60	47 47 56 57 54	76 64 63 64 67	41 42 51 49 50	67 57 57 59 68	46 42 52 52 52 55	66 62 58 60 63	45 42 53 53 57	61 55 51 57 63	30 29 46 45 48	65 69 54 57 59	43 44 50 50 52	69 60 63 65 61	53 55 59 58 56	67 58 63 65 64	52 44 56 42 50	67 60 68 62 61	53 50 57 56 58	72 64 68 65 61	54 49 60 58 56	68 62 60 61 65	49 50 54 53 56	67 58 68 61 63	45 50 53 44 54	72 60 63 63 64	38 40 51 55 50	64 64 65 64 61	56 56 56 56
21 22 23 24 25	56 63 65 61 58	50 54 49 44 39	64 60 61 59 63	57 56 46 41 27	56 63 61 57 58	53 54 42 41 34	59 62 57 52 59	54 50 43 34 29	56 63 59 49 53	47 49 40 28 30	58 60 59 51 51 52	49 51 40 36 32	59 63 65 60 57	54 57 51 48 48	64 63 61 55 60	51 41 43 38 28	58 63 59 58 59	55 52 47 43 37	61 67 64 62 62	56 59 53 49 45	58 63 59 54 60	53 52 45 38 34	60 60 56 52 57	54 51 42 39 30	62 60 60 56 60	55 54 44 39 25	63 66 65 61 62	56 66 56 44 47
26 27 28 29 30	61 57 49 54 60 61	42 44 36 32 38 43	63 51 52 57 58 56	31 38 23 20 28 43	61 45 46 52 56 53	42 39 33 31 35 42	58 42 45 52 55 55	36 36 29 25 32 46	52 43 37 42 47 48	27 26 14 17 30 35	51 44 45 52 51 48	36 33 25 28 36 38	62 58 51 53 56 61	49 44 39 39 44 50	64 56 46 56 60 60	31 . 33 . 29 . 28 . 32 . 45	64 55 49 56 58 64	40 42 37 33 38 49	66 65 52 56 60 66	46 47 42 41 44 48	62 49 46 51 57 63	35 37 32 26 32 45	62 56 46 51 57 57	36 36 31 27 35 46	65 52 49 55 60 56	29 39 25 19 24 45	63 68 51 58 58 61	4 4 4 4 5
Mns.	61. 2	45. 3	62.9	39.7	58. 6	42.7	57.6	40.6	55. 5	32.8	56.3	39. 1		49.6	63. 4		62.1		64. 4		59. 5		60.3		61.3		64. 0	50. 5

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 1—Continued.

			The state of	New .	Jersey.			100	Mar					Mary	land.				Mil	ls-	Wasi	hing-			Virg	inia.		
Date.	Bridg	geton.		hts- vn.	Phil	lips rg.	Sus	sex.	w. v	rg, /a. §§	Balti	more.		ling- n.	Fre		West		Do	10,	D.	n	Frede	ricks- rg.	Staun	ton.§§	Wo	
	Max.	Min.		Min.	Max.	Min.	Max.	Min.	Max.	Min.																		
1 2 3 4 5	67 67 68 80 73	41 56 45 52 52	63 62 64 75 72	39 55 38 51 54	58 61 65 72 66	42 45 38 53 48	53 59 64 66 66	38 47 51 50	64 64 59 83 64	47 55 52 52 54	68 68 64 78 72	50 56 51 60 53	61 65 63 76 72	42 55 45 55 47	64 65 63 76 75	46 57 49 56 58	70 66 59 81 78	47 47 51 53 51	72 71 65 83 76	41 57 53 53 48	66 69 63 80 74	47 56 53 59 52	68 72 62 82 78	47 62 55 57 57	68 78 61 82 72	50 57 50 51 52	74 67 61 87 75	4 5 4 5 6
8 8 9	68 62 62 73 75	42 45 40 36 42	62 57 63 72 74	40 48 33 35 40	57 52 62 69 73	42 39 32 36 40	54 51 63 71 74	37 40 39 33 38	72 72 60 66 67	43 45 40 43 43	65 65 60 71 68	48 49 45 51 54	61 61 59 67 69	45 46 40 36 44	65 64 59 66 69	42 51 40 42 50	69 75 58 66 63	43 50 45 43 52	69 70 64 66 72	41 50 44 39 45	66 67 63 70 69	47 48 43 51 52	68 70 60 67 68	45 50 44 54 51	70 77 55 68 59	43 48 45 46 52	75 66 54 60 70	4 4 4 5
	60 70 62 64 64	54 56 45 38 44	61 70 65 66 60	50 50 41 34 39	61 68 64 67 52	52 47 41 35 43	59 66 62 66 58	44 48 32 34 37	71 67 64 66 62	54 51 49 40 45	72 68 65 63 62	58 56 48 45 55	64 65 61 62 56	55 54 46 37 45	71 67 63 66 61	58 49 47 40 49	74 69 70 65 72	54 47 45 40 52	62 70 65 66 70	52 53 42 35 42	74 67 64 68 64	54 52 43 41 54	73 68 65 66 71	58 54 51 41 48	75 69 67 70 73	55 50 44 44 44 43	79 68 70 70 74	4 4 5
	70 65 66 66 63	52 46 58 58 58	72 63 67 66 63	50 45 56 58 57	73 64 63 62 63	50 45 57 55 55	75 - 69 62 59 64	44 41 56 52 55	67 60 68 68 68	49 48 52 49 49	72 64 71 67 65	55 53 59 57 58	68 61 66 63 63	52 47 57 56 57	65 61 70 67 64	50 47 58 46 58	67 63 62 73 72	45 51 55 43 45	70 67 67 65 63	52 47 47 47 58 59	70 65 72 67 64	50 49 57 52 59	64 65 70 70 65	52 47 58 50 60	71 60 70 72 72	51 52 53 40 40	70 64 69 74 71	4 4 4
1 2 3 4 5	63 69 65 62 67	57 58 50 40 39	60 67 65 62 62	54 57 52 37 34	56 65 65 62 62	53 55 45 42 34	61 62 67 58 62	51 51 49 39 32	64 65 60 59 59	58 57 45 44 33	63 68 63 61 61	58 57 50 46 43	59 65 62 58	55 56 47 43	63 67 62 58 60	57 57 44 39 34	68 62 64 61 61	58 47 43 38 31	76 75 66 65 62	60 59 45 41 38	63 67 60 60 63	57 55 43 42 39	66 69 64 59 63	58 56 49 41 38	74 63 61 60 61	50 55 37 37 37 32	60 62 66 65 67	2 2 2 2
6 7 8 9 0	69 71 55 60 63 66	39 38 40 32 34 42	67 65 57 58 61 65	34 38 37 27 31 41	65 61 50 56 58 63	38 40 32 27 33 42	66 56 50 55 62 61	36 40 31 25 32 40	62 65 48 57 59 65	34 37 41 32 34 37	69 70 50 60 59 66	43 45 42 41 42 51	61 65 53 57 59 64	36 35 35 35 33 45	63 65 54 56 58 64	35 37 40 35 35 47	67 65 53 59 64 68	32 34 40 35 32 45	71 73 54 63 61 66	38 35 39 35 36 40	66 69 49 61 62 67	38 40 39 38 38 49	67 70 60 61 61 69	38 38 42 34 37 43	70 72 62 64 67 68	37 34 42 40 38 38	71 75 56 65 68 69	3 4 3 3 4
Mns	66.5	46.1	64.7	43.7	62.4	43.1	61.7	41.4	64.4	45. 5	65.7	50.9	62. 9a	46. 0a	64.2	46.7	66.6	45.0	67.9	45.9	66.1	48.3	67.1	48.9	68.1	45.5	68.5	45.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

GENERAL SUMMARY.

As compared with October in 1909 and 1910, in both of which years subtropical disturbances of great force passed over Florida and adjacent south Atlantic coast districts, the current month was of quiet character. It is true that a tropical storm of moderate force was observed near Turks Island on the 25th which was central southeast of extreme southern Florida on the 26th, but this storm fortunately passed into the southeastern portion of the Gulf of Mexico where it lingered for a few days without recurving toward the northeast. Suitable warnings were issued to the Florida coast stations on the 25th and 26th, and no damage even to vessels at sea was reported. In consequence of the immunity from severe storms along the Florida coast rapid progress is being made toward the completion of the sea-going railway into Key West. Nevertheless, though uneventful as regards storms, the month presents some interesting features. Unusually high temperatures prevailed throughout the first decade and although the latter part of the month was cool the excess in temperature was so great that the current month ranks with the very warm Octobers of 1884, 1897, 1900, and 1910, and even surpassed all previous records in several States, notably in Georgia and Florida. The maximum temperatures for the 3d to 8th, reaching or exceeding 100° in portions of Mississippi, Alabama, and Georgia, and ranging from 92° to 99° in other States, have in many cases never before been equaled in October and must be considered most remarkable.

The condition of drought characteristic of the entire summer continued to prevail for the first few days of October, but was subsequently relieved by copious rainfall over large portions of the district. The rainfall was irregularly distributed; it was above normal in all States except Mississippi, where a small deficiency occurred. The excess for the month exceeded 2 inches in South Carolina and Georgia; in South Carolina the month was the wettest on record, and in Georgia only October, 1898, gave a slightly greater average rainfall. Falling in rather large amounts the water from the several individual storms was rapidly carried away and the rivers soon declined to almost their previous low stages. A long period of rainfall will be necessary to fully restore the level of the ground waters.

The distribution of atmospheric pressure presents no features of special interest. No distinct depressions passed over the district. The lowest pressure for the month was 29.73 inches on the 7th at Cape Henry, Norfolk, and Lynchburg, Va.; generally, however, the lowest pressures were registered on the 17th during the passage of a severe storm over the upper Lake region. The highest atmospheric pressure occurred everywhere on the 25th, with the maximum, 30.52 inches, at Lynchburg, Va.

The first light frosts of the season occurred on October 23, and during the two or three following days light to killing frosts were general over the northern portions of the district but without material damage. The number of clear days was fairly large and conditions generally were not unfavorable for agricultural interests.

TEMPERATURE.

The temperature for October was above normal in nearly all portions of the district, only one station, Richmond, Va., reporting a small deficiency. The mean temperatures at individual stations near the coasts of Virginia and North Carolina did not differ materially from the normals, but the State averages show a gradual increase in the departure which reached $+7^{\circ}$ in northern Florida, south-central Georgia, and northern Alabama. The greatest excess at any regular Weather Bureau station was 6.3° at Jacksonville, Fla. The State means for all of the States touching the Gulf averaged over 4.5° above the normal. In Georgia and Florida the current month was the warmest October since 1891, and in several other States the warm October of 1900 was almost equaled.

The first half of the month was very warm and summerlike, and the maximum temperatures in many portions of the district during the first decade were unprecedented. In Virginia the warmest days were the 4th and 7th and the maximum temperatures ranged from 80° to 92°; in the Carolinas the 7th was the warmest day, and temperatures of 95° to 99° were registered at many stations; in Georgia during the first 8 days of the month the maximum temperatures were generally above 95° except in the northern portion of the State, and at 6 stations in the southwestern section where temperatures of 100° or over were experienced on several days, far surpassing all previous records for October. Similar high temperatures also occurred in Alabama, Florida, and Mississippi.

Warm weather continued in the northern portion of the district until about the 13th and in the southern portion until the 16th, after which temperatures were moderately below normal. The coldest weather occurred quite generally from about the 22d or 23d to the 25th, during which period minimum temperatures slightly below freezing were reported in the northern portions of Mississippi, Alabama, and Georgia and in western North Carolina and Virginia, with light to killing frosts at many places. As a rule, however, the minimum temperatures were not nearly so low as commonly occur in October, and the frosts did little damage.

The mean temperature for the entire district was 67.9° or 4.1° above the normal. The highest State mean was 76.6° for Florida, and the lowest 60.3° for the Virginia area. The means at individual stations ranged mostly between 55° and 70°, but at two stations in Florida,

Miami and Key West, the means were above 80°, highest 81.8° at Key West, and at one station in Virginia the mean was below 55°, the lowest 53.8° at Hot Springs. The highest temperature for the district was 101° at several stations in Alabama and Georgia on 5 dates from the 3d to 8th, and the lowest was 30° at 5 places on the 23d to 25th.

PRECIPITATION.

The general drought that prevailed over the district at the close of September continued during the first week of October, although light showers occurred from the 1st to 3d in the Carolinas and Virginia, but during the remainder of the month abundant rains fell in most sections. Though not distinctly associated with areas of low atmospheric pressure 3 or 4 well-defined periods of general rains occurred, namely, from the 7th to 12th, 17th to 18th in the northern, 14th to 18th in the southern portion of the district, and in the northern portion 22d to 23d, 27th to 28th, and on the 31st, while near the Gulf the rainfall during the latter portion of the month was more irregularly distributed. During each of these periods the rainfall was quite heavy at many stations.

The precipitation for the entire district averaged 4.19 inches or 1.09 inches above the normal. The State averages show a small deficiency for the Mississippi area, moderate excess for Alabama, North Carolina, and Virginia, and a marked excess for South Carolina, Georgia, and Florida. In South Carolina the current October was the wettest October on record, having an average rainfall of 5.89 inches as compared with 5 in October, 1899; in Georgia the State average, which approximated twice the normal amount, was the highest on record for October during the past 20 years, excepting only October, 1898.

during the past 20 years, excepting only October, 1898.

The regions of greatest rainfall, where the total for the month exceeded 10 inches, are very small areas on the west coast of Florida just north and south of Tampa, on the Georgia coast, and in extreme western South Carolina. The largest amount for the district was 14.17 inches at Liberty, S. C. The least rainfall occurred in the central portion of southern Georgia; in southwestern Alabama, and in the central portion of the Mississippi area. The monthly rainfall was under 1 inch at only 2 stations in Alabama and 4 in Mississippi. The least amount for the district was 0.35 inch at Evergreen, Ala. The number of days with appreciable rainfall averaged 7, ranging from 5 in Mississippi to 9 in Florida and Virginia.

RIVER CONDITIONS.

The rivers throughout the district continued to maintain very low stages during the first decade of October,

and the heavy rains of the middle and latter portion of the month in many cases failed to restore the normal rate of flow. In Mississippi and Alabama the rivers remained very low during the entire month. The Chattahoochee and Flint Rivers in Georgia were unusually low early in the month, the Flint River at Albany reaching the lowest point in its history, namely, -1.1 foot on the 9th to 12th. These rivers experienced only a very moderate rise during the latter portion of the month. A moderate rise was experienced at Macon, Ga., on the 23d, when the Ocmulgee reached a stage of 14.3 feet, flood stage 18 feet. In South Carolina the heavy rains on the 17th to 18th caused a rather rapid rise in all streams, and flood stages were slightly exceeded in the Catawba-Wateree on the 19th to 21st and in the Santee during the following few days. The highest stages were: At Camden on the Wateree 24 feet on the 20th, flood stage 24 feet; at Catawba on the Catawba River 11.3 feet on the 19th, flood stage 11 feet; and at Rimini on the Santee 13.3 feet on the 26th to 28th, flood stage 12 feet. Warnings were issued in ample time and no damage resulted.

In North Carolina the Roanoke and Cape Fear Rivers experienced moderate rises on the 20th to 24.4 feet at Weldon and to 12.9 feet at Fayetteville. The James River at Richmond reached a stage of about 4 feet on the 20th, or 6 feet below flood stage, but the highest point attained since last spring.

MISCELLANEOUS PHENOMENA.

The prevailing winds during October were from the northeast in all portions of the district except Alabama and Mississippi where they were from the north. The wind movement was moderate, the average hourly velocity for the month exceeding 10 miles only at Cape Henry, Va., Hatteras, N. C., Savannah, Ga., and Pensacola, Fla. The following are the highest velocities registered: Cape Henry 43 miles from the northeast on the 7th, and Hatteras 40 miles from the north on the same day. The amount of sunshine was deficient in the northern portion of the district, but above normal from Georgia west to the Mississippi area. The average number of clear days for the district was 14, ranging from 12 in Virginia to 16 in Mississippi, and the average number of cloudy days was 10, ranging from 7 in Florida to 13 in Virginia. At many places thunderstorms of mild character occurred but no severe storms were reported. In Alabama and Georgia the unusually warm weather caused many peach and pear trees to bloom, the trees being well covered with blossoms and presenting a springlike appearance.

TABLE 1.—Climatological data for October, 1911. District No. 2, South Atlantic and east Gulf States.

Stations.			100												days,		-			
4	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	N umber of cloudy days.	Prevailing wind direction.	Observers.
Virginia.														17 H.				011		
banville Diamond Springs Lampton Lot Springs Assiter Aexington Lynchburg Lew Castle Lew Castle Lewport News Lorfolk Landolph Lichmond Locky Mount	Filtrayivania. Princess Anne. Elizabeth City Bath. Goochland. Rockbridge Campbell. Craig. Warwick. Norfolk. Charlotte. Henrico. Franklin.	240 413 25 5 2,195 100 1,060 685 1,300 55 91 334 1,150	7 7 17 37 22 17 13 11 1 28 19 2 34 40 2 8 41 7 32 17	60.5 62.6 58.6 58.5 62.2 62.2 52.5 53.8 57.2 59.2 62.7 62.6	+ 0.5 + 1.0 + 1.3 + 1.1 + 2.5 + 2.8 + 2.3 - 0.6 + 1.5	85 87	4 7 7 4 7 7 4 7 7 7	33 37 47 39 34 40 46 29 30 35 45 48	25 25 14 25† 26 27 27† 25† 25 25 25 27 29 27	33 30 24 35 34 38 33 33	1.70 4.07 3.99 3.79 4.94 2.64 1.81 5.21 3.00 4.43 3.87 4.97 2.94 2.77 4.20 3.61 4.77	+ 0.64 + 2.41 + 1.57 - 2.18 + 0.61 + 1.35 + 0.32 + 1.97 - 1.52 + 2.19 + 1.44 + 0.49 - 1.14 + 0.29 + 0.89	1.92 2.61 0.93 0.61 1.45 1.54 2.06 0.65 1.40 1.20 2.00 1.20 0.93 0.72 1.17 1.27	000000000000000000000000000000000000000	10 7 10 11 13 6 6 7 7 11 10 13 4 11 11 12 9 14 13 6 6 11	12 9 9 13 8 19 15 15 14 7 12 9	7 6 9 6 2 14 0 6 3 5 12 7 7	13 12 12 12 15 14	ne. nw. ne. ne.	Rev. Plummer F. Jones. D. D. Booze. F. M. Gage. U. S. Weather Bureau. Leander McCormick Obs J. A. Ligon. C. & O. R. R. C. G. Watkins. Va. Truck Exp. Sta. Normal and Agr. Inst. F. M. Terry. T. J. Davis. Virginia Military Institu U. S. Weather Bureau. Miss J. L. Martin. C. W. Ashby. U. S. Weather Bureau. W. J. Abbett. U. S. Weather Bureau. W. J. Abbett. U. S. Weather Bureau. G. W. B. Hale.
axe pottsville (near) Villiamsburg	Charlotte	350 15 70	8 23 20	62.8	+ 2.5 + 5.6	92 84 85	4 4	40 37 46	29 25† 25 26† 24	30 36 27	3.90 3.71 2.45	- 0.31 - 0.88	1.16 0.95 0.70	0 0	10 6		3 9	11 17 8	ne. sw.	State Experiment Farm. B. W. Jones. Eastern State Hospital.
North Carolina.	James City	10	20	01.1	7 0.0	00		40	-	-	2. 30	0.00	0.10							
Albemarie deaufort de de la deaufort	Beaufort. Wilkes. Rutherford. Harnett. Orange. Mecklenburg. Rutherford. Durham. Northampton. Chowan. Bladen. Halifax. Cumberland. Wayne. Alamance. Guilford. Pitt. Dare. Vance. Gaston. Lenoir. Caldwell. Lincoln. Franklin. Robeson. Dare. Milkes.	500 500 773 1,150 406 66 30 60 99 170 102 656 843 755 101 508 952 4 1,186 1,18	244 411 9 300 18 37 18 37 18 37 18 37 19 30 18 37 19 30 19 30 10 3	66.0 8 60.8 63.3 64.0 65.4 66.1 8 66.2 2 61.9 62.2 60.7 66.4 8 60.2 65.8 60.7 65.4 66.4 61.8 63.0 66.4 65.0 66.5 62.5 62.5 62.5 62.5 62.5 62.5 62.5	+ 3.4 + 2.0 + 3.5 + 3.9 + 2.3 + 1.9 0.0 + 1.0 + 1.0 + 3.4 + 4.2 + 2.6 + 4.7 + 4.3 + 4.3 + 4.3 + 4.3 + 4.3 + 4.3 + 2.9 + 2.2 + 1.9 + 2.3 + 3.4 + 4.3 + 4.	90 91 91 92 95 93 93 93 86 88 89 96 96 96 92 92 92 91 94 92 92 93 94 94 94 92 95 94 94 94 95 96 96 96 96 96 96 96 97 98 98 98 98 98 98 98 98 98 98 98 98 98	21777777777777777777777777777777777777	32 30 37 44 42 39 33 33 35 43 36 36 37 38 40 40 40 40 51 51 52 52 54 54 54 54 54 54 54 54 54 54 54 54 54	25 25 25 25 25 26 26 26 27 24 25 26 26 26 26 26 26 26 26 26 26 26 26 26	444 333 344 447 357 36 36 37 37 37 36 37 37 36 37 38 39 39 39 39 39 39 39 39 39 39	2.93 3.76 6.88 4.02 3.76 6.68 8.42 6.68 8.42 6.63 7.66 7.66 7.66 7.66 7.66 7.66 7.66	- 0. 20 + 0. 33 + 1. 14 - 0. 35 - 3. 58 + 0. 98 + 0. 98 + 0. 130 + 1. 62 + 2. 44 + 0. 11 + 1. 53 + 2. 07 + 2. 20 + 2. 20 + 3. 16 + 0. 37 - 0. 42 - 0. 30 + 2. 20 - 0. 42 - 0. 30 + 2. 20 - 0. 42 - 0. 30 - 0.	3.50 (44 99 77 66 88 88 77 76 66 66 77 711 100 112 88 77 70 10 66 66 77 88 14 17 77 11 10 11 11 11 11 11 11 11 11 11 11 11	23	16 10 10 7 3 1 1 5 7 7 6 1 1 6 3 3 1 1 1 6 1 1 1 1 1 1 1 1 1 1	15	n. ne. ne. ne. ne. w. n. s. ne. ne. ne. ne. ne. ne. ne. ne. ne. ne	M. J. Harris. H. D. Aller. A. L. Beil. W. L. Brewer. S. B. Tanner. J. A. Smith. Prof. A. H. Patterson. U. S. Weather Bureau. J. M. Flack. J. C. Michie. J. T. Elliott. E. R. Conger. J. W. Hall, ir. T. S. Inborden. Frank Glover. Mrs. N. B. Taylor. Dr. W. R. Goley. A. H. Horry. R. M. Hearne. U. S. Weather Bureau. Enoch Powell. Rev. C. J. Strang. H. C. V. Peebles. G. M. Goforth. Biair Jenkins. T. B. Wilder. B. M. Davis. U. S. Weather Bureau. Sergt. Thos. McGuire. J. S. Mann. B. J. Utley. T. A. Asheraft. J. B. P. Massey. Prof. A. H. Merritt. J. B. P. Massey. Prof. A. H. Merritt. J. W. Holland. J. B. Boddie. G. H. Mooneyham. J. B. Hill. E. J. Conway. General office. U. S. Weather Bureau. A. H. York. J. R. Walton. E. M. Redd. B. C. Hawkins. H. S. Ledbetter. G. P. Womble. N. Lunsford. Rev. H. E. Rondthaler. Miss Thelma Wilkinson R. P. McAnally. J. Y. Savage. Dr. R. J. Noble. C. H. Sholar. E. S. Sanders. L. J. H. Mewborn. Mrs. P. H. Beek. Mrs. C. E. Taylor. D. M. Sholar. E. S. Sanders. L. J. H. Mewborn. Mrs. P. H. Beek. Mrs. C. E. Taylor. D. Matt Thompson. E. V. Zoeller. H. S. S. Cooper. J. R. Williamson. J. H. Jefferies. U. S. Weather Bureau.
South Carolina.	Alken	565	27 23 10		+ 3.9 + 4.3 + 6.2	93 97 95	7 7 5	46	23 30 25	† 25 34 32	10.00	+10.27	4.60			7 14	7	10	w.	Dr. H. T. Hall.

TABLE 1.—Climatological data for October, 1911. District No. 2—Continued.

			year	Tem	peratur	e, in c	degre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	ny days, more.		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	fall,	5	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	77	Observers.
South Carolina—Con.																				E. J. Hite.
atesburg. lackville lackville lairs owman alhoun Falls amden atawba happells harleston heraw lemson College olumbia onway arlington iillon fingham erguson lorence eorgetown reenville reenwood leath Springs acksonboro ingstree lberty leriwether lewberry elzer teriwether ewberry elzer teriwether ewberry elzer teriwether elzer mith Mills ociety Hill partanburg ummerville rrenton Valterboro Vinnsboro Vinnsboro Vintsboro Vintspan Valterboro Vintsboro Vintsboro Vintspan Vinterboro Vintsporo Vint	Barnwell Fairfield Orangeburg Abbeville Kershaw York Newberry Charleston Chesterfield Oconee Richland Horry Darlington Dillon Florence Berkeley Florence Georgetown Greenville Greenwood Lancaster Colleton Williamsburg Pickens Edgefield Newberry Anderson Berkeley Dorchester Calhoun Saluda Union Williamsburg Darlington Spartanburg Dorchester Edgefield Colleton Williamsburg Dorchester Calhoun Saluda Union Florence Calhoun Spartanburg Dorchester Edgefield Colleton Forthester Edgefield Colleton Forthester Edgefield Colleton Forthester Edgefield Colleton Fairfield	252 562 402 448 144 850 351 175 175 175 175 175 175 175 1	2 7 6 18 23 23 9 16 16 20 20 10 18 7	67. 0 69. 6 68. 4 64. 1 67. 0 69. 8 67. 0 67. 1 66. 9 69. 4 64. 8 67. 2 66. 9 67. 2 66. 8 67. 3 67. 3 67. 3 67. 3	+ 5.0 + 6.3 + 3.2 + 4.7 + 3.1 + 2.5 + 4.4 + 3.9	93 93 86 92 95 94 97 94 89 93 92 94 90 91 94 95 94 94	5 1 † 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	44 48 47 47 400 48 48 46 46 49 42 42 46 42 45 40 50 50 45 45 45 45 45 50 65 65 65 65 65 65 65 65 65 65 65 65 65	25 24 25 25 25 25 25 25 25 25 25 24 29 30 25 25 24 25 25 24 25 25 24 25 25 25 24 25 25 25 25 25 25 25 25 25 25 25 25 25	29 32 28 32 34 29 34 35 27 26 31 25 33	5.570 4.47 4.86 6.84 5.89 5.89 5.89 6.3.20 7.36 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6	+ 4.30 + 2.71 - 1.13 + 4.12 - 0.01 + 1.78 + 4.56 + 3.78 - 0.10 + 1.50 + 3.09 + 3.09 + 3.09 + 3.09 + 3.51 - 0.70 + 1.28 + 5.11 - 0.70 + 2.95 + 3.51 - 0.28 + 3.40 + 3.73 + 2.16 + 2.16 + 3.73 + 1.19 + 3.73 + 1.10 + 1.20 + 3.73 + 1.10 + 3.73 + 1.10 + 3.73 + 1.10 + 3.73 + 1.10 + 3.73 + 1.10 + 3.73 +	1. 96 1. 1. 13 1. 124 1. 1. 13 1. 194 2. 146 1. 181 2. 146 2. 181 2. 192 2. 105		8 8 8 9 9 6 10 5 8 7 7 5 10 6 7 8 5 4 6 6 6 12 8 6 6 5 7 10 7 10 10 8 6 8 7 7 10 6 6 6 10 9 9 9 6 11 6	14 6 12 13 14 12 12 12 12 12 13 11 11 11 11 11 11 11 11 11 11 11 11	1 9 7 7 12 8 6 6 3 1 14 6 6 4 11 1 1 14 5 5 6 6 3 10	16 16 12 6 9 13 16 15 10 16 8 12 19 9 10 17 11 112 17 7 11 118 14 20 5 11 12 14 4 8 15	s. ne. ne. ne. ne. ne. ne. ne. ne. ne. ne	Miss M. E. Lange, John R. Ragsdale, B. O. Evans, L. M. Parker, W. C. Brown, J. C. Faris, W. R. Zimmerman, U. S. Weather Bureau J. H. Powe, Prof. John N. Hook, U. S. Weather Bureau D. C. McCall, A. E. Rowell, H. B. McCall, Dr. J. R. Des Portes, H. K. Gilbert, A. P. Hazard, Spartan Goodlette, M. M. Calhoun, J. A. Weaner, W. E. Haskell, jr. A. O. Matthews, John T. Boggs, Wm. S. Middleton, W. G. Peterson, John M. Ward, Miss E. P. Ravanel, G. F. Lewis, J. S. Wannamaker, Mrs. F. V. J. Maxwell E. W. Jeter, W. G. Walker, M. J. Lucas, F. P. Robinson, Miss E. H. Gadsden, C. A. Long, J. A. Westerberg, J. W. Westerberg, J. W. Seigler, E. R. Rivers, J. G. Hutson,
beville. dairsville. bbary ille dairsville. bbary llapaha mericus. thens. ttanta ugusta sarnesville slakely utler aamak anton arlton layton oliumbus ovington uthbert sahlonega biamond dublin sastman atonton liberton xperiment ore Gaines seainesville slennytlle lennytlle sore rereifin farrison fartwell fartwe	Bartow Dougherty Berrien Sumter Clarke Fulton Richmond Decatur Pike Early Taylor Warren Cherokee Madison Rabun Muscogee Newton Randolph Lumpkin Gilmer Laurens Dodge Putnam Elbert Spaiding Clay Hall Chattooga Greene Spaiding Washington Hart Pulaski Lincoln Cobb. Jefferson Telfalr Stewart Bibb.	230 293 362 694 1, 218 110 110 875 300 650 650 613 894 452 361 1, 519 2, 020 466 1, 519 2, 020 452 361 1, 254 2, 258 2, 258 2, 258 2, 259 3, 2	25 222 28 344 466 45 19 20 100 112 121 121 121 121 121 121 121	73.0 69.5 65.6 65.7 68.9 70.2 72.7 68.7 68.7 68.6 64.0 65.7 68.7 68.7 68.7 68.8 64.0 66.8 66.8 67.4 66.2 66.8 67.4 66.2 66.8 67.4 66.2 66.8 67.4 66.2 66.8 67.4 66.2 66.8	+ 5.3 + 5.6 + 5.4 + 2.9 + 3.3 + 4.5 + 5.9 + 6.1 + 5.8 + 6.3 + 3.1 + 6.1	97 94 96 94 93 99 99 101 96 85 98 88 87 99 94 93 93 93 93 94 92 94 94 92 94 94 93 99 99 99 99 99 99 99 99 99 99 99 99	3† 5† 5 3 7 5† 3 6	41 41 41 34 43 39 38	24† 23 23 23† 23 23 23 23 23 23 23 23 23 23 23 23 23	36 33 26 25 32 32 40 32 31 31 31 31 32 27 34	1. 25 5. 53 3 4. 81 4. 82 4. 7. 46 65 5. 5. 83 5. 61 8. 82 4. 6. 65 65 8. 83 6. 65 6. 82 6. 83 6. 83 6. 84 6. 85 6	+ 5.13 - 0.09 + 1.67 + 2.20 + 4.08 + 6.16 + 2.99 + 3.55 + 5.60 + 1.84 - 0.39 + 3.51 + 2.34 + 2.64 + 0.54 + 2.64 + 0.64 + 3.65 + 0.54 + 3.65 + 3.60 + 3.60	0.87 1.10 0.66 1.50 1.57 2.70 0.70 2.00 1.57 2.85 2.93 3.47 1.50 3.39 7.15 1.44 0.66 1.45 1.75 1.75 1.10 1.75 1.10 1.75 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.1	000000000000000000000000000000000000000	93 113 4 1188 877 946667 1079 777 1287 777 86668 77748 889	16 16 15 15 1 11 10 8 16 11 14 16 6 16 11 15 11 11 11 11 11 11 11 11 11 11 11	0 6b 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 7b 14 15 12 18 10 21 11 16 8 11 11 12 4 6 10 11 14 15 16 17 18 18 10 10 11 11 11 11 11 11 11 11 11 11 11	n. ne. ne. ne. ne. ne. ne. ne. ne. ne. n	W. H. Calhoun. Mrs. R. C. Evins, George C. Brosnan. James T. Austin. F. P. Harrold. C. D Cox. U. S. Weather Bureau Do. Mrs. C. O. Wimberley C. W. Mobley Ralph M. Hobbs. Mrs. Maule Wallace, J. A. Chapman. G. W. Evans. M. C. Power. A. J. Duncan. A. J. Land. Mrs. Sarah E. Cruse. Prof. W. McMichael. Prof. B. P. Gaillard. R. A. Kimzey, Mrs. M. E. Martin. Miss Annie Bohannon Prof. W. C. Wright. H. A. Roebuck. Marth V. Calvin. Miss Eva T. Graham, W. C. Walker. William C. Barnard. H. M. Ponder. R. L. Caldwell. V. P. Enloe. A. W. J. Wood. W. B. McMullan. R. H. Wood. B. J. DuBose. A. N. Mayes. J. C. Little. Walter A. Hilton. A. W. Latimer. U. S. Weather Bureau E. C. Bryan. Prof. O. M. Cone. M. G. McComb.

TABLE 1.—Climatological data for October, 1911. District No. 2—Continued.

			year	Temp	perature	e, in d	legre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	days.		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, ye	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevailing wind tion.	Observers.
Georgia-Continued.																				***
utnam uitman amhurst essaca .ome t. George t. Marys avannah tatesboro albotton allapoosa homasville ifton occos addosta alona vashington ayeroes ayerses ayerses ayerses	Brooks. Murray. Gordon Floyd. Charlton Camden Chatham Bulloch Talbot. Haralson Thomas. Tift. Stephens. Lowndes McIntosh Wilkes Ware. Burke. Troup.	173 1,363 657 576 20 65 253 750 1,150 273 370	111 25 18 17 55 4 19 61 11 18 12 29 26 6 6 14 23 22 22 20 22 10	73.6 66.6 67.2 73.7 74.6 71.5 72.0 71.2 66.4 73.4 63.8 75.2 66.8 74.4 68.4	+ 4.6 + 6.1 + 7.4 + 4.7 + 4.9	100a 96 88 99 95 97 93 97 100 95 97 97 97 97 97 97 97 98 88 100	3 6 1 1 3 5 5 3 5 6 5 7 7 5 4 1 2 1 1	38° 50° 37° 38° 51° 53° 53° 51° 40° 37° 48° 41° 49° 43° 51° 41° 40° 37°	23 23† 23† 19 24 30 23 23 23 23 24 24 24 24 24 24	30 37 30 32 21 32 35 31 29 29 32	5. 15 5. 05 3. 70 3. 46 3. 11 10. 13 4. 58 3. 88 5. 68 3. 54 4. 90 3. 05 4. 84 3. 85 10. 63 8. 70 3. 50 5. 80 5. 8	+ 1.58 + 3.07 + 2.43 + 1.29 + 0.87 + 6.36 + 1.55 + 1.67 + 2.48 + 0.78 + 1.77 + 1.87 + 6.51 + 6.51 + 0.78 + 3.52 - 0.56 + 1.90	1.50 1.62 2.95 2.70 1.69 0.88 5.00 1.72 1.11 2.00 1.52 2.50 1.63 1.47 4.23 4.19 0.91 1.70 0.70	000000000000000000000000000000000000000	6 5 4 8 9 9 9 11 8 7 10 9 7 7 5 8 10 5 10 7	7° 17 15 20 13 18 6 8 9 18 16 11 19 6 6 13 19	0 10 4 5 6 13 11 16 2	10° 14 6 7 13 7 12 12 6 11 10 22 16 11 20 14 9	ne. n. se. ne. w. ne. ne. ne. ne. ne. ne. ne. ne.	Mrs. J. M. Collum. A. B. Jones. D. E. Humphreys. D. A. Norton. W. M. Towers. A. N. Lund. David C. Sterling. U. S. Weather Bureau. W. C. Cromley. Dr. E. L. Bardwell. Elmer C. Bishop. U. S. Weather Bureau. K. C. Moore. Mrs. Alice Starke. Miss Annie Twitty J. M. Atwood. Miss Ella B. Smith. Thomas Sasser. Mrs. H. W. Blount. E. N. Dunn. E. T. Riggins.
palachicola §readiareadiarehervon Parksartow	De Soto Alachua De Soto Polk Calhoun Manatee Hernando Franklin Levy Lake Walton Volusia Lake Putnam Taylor Nassau Polk Lee St. Lucie Alachua Orange Nassau Pade Palm Beach Citrus Duval Hamilton Bradford Monroe Osceola Columbia Suwanee Baker Madison Brevard Jackson Brevard Jusia Jefferson Gadsden Volusia do Orange Escambia Jefferson Gadsden Volusia do Orange Escambia Hillsboro do Brevard Dasco Putnam St. Johns Pasco Putnam St. Johns Leon Hillsboro do Brevard	24 61 92 92 150 115 10 10 10 10 10 10 10 10 10 10 10 10 10	7 100 266 13 23 2 27 18 12 218 13 14 120 19 4 4 18 22 39 10 17 13 2 1 15 11 141 18 28 10 10 10 9 7 5 266 17 18 31 17 3 9 14 4 3 18 4 24 12 12 66 15 11	79. 4 4 77. 9 74. 0 77. 0 77. 0 78. 4 77. 9 78. 4 77. 9 78. 2 76. 4 77. 9 8 78. 2 77. 4 77. 9 8 78. 2 77. 4 75. 8 8 78. 4 77. 9 8 78. 8 78. 4 77. 9 8 78. 8	+ 3.8 + 3.6 + 3.6 + 3.6 + 3.7 + 3.7 + 5.4 + 3.7 + 5.4 + 5.6 + 6.0 + 5.4 + 5.5 + 3.5 + 3.5 + 3.5 + 3.5 + 3.5 + 3.5 + 3.7 + 3.8 + 5.3 + 5.3	92 95 96 97 97 97 97 97 97 98 98 98 99 99 99 99 99 99 99	5 14 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	50 62	23 23 20 20† 20† 20 23 20 24	26 30 36 32 22 33 31 31 31 30 20 20 30 31 22 24 25 22 30 31 31 31 31 31 31 31 31 31 31 31 31 31	3.533 2.461 4.3 07 4.5 50 2.4 8.4 8.4 8.5 5.3 2.8 4.8 4.8 5.5 3.3 4.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 4.8 4.8 5.5 5.5 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5	+ 1.77 + 1.15 + 0.36 - 0.48 + 3.39 + 3.69 + 0.26 + 0.33 + 1.00 - 1.99 - 0.28 + 1.66 + 1.34 + 2.01 - 0.98 - 3.62 + 2.09 + 7.48 + 1.00 - 0.283 + 6.97 + 1.31 + 0.76 - 2.18 - 0.76 - 1.90 - 0.283 + 6.97 + 1.31 + 0.76 - 2.18 - 0.43 + 4.55 - 0.43 + 4.55 + 2.20 + 7.48 + 1.51 - 0.43 + 4.55 + 2.20 + 7.48 + 1.31 + 0.76 - 2.18 - 0.86	$\begin{array}{c} 3.44 \\ 1.68 \\ 1.129 \\ 2.10 \\ 0.80 \\ 0.94 \\ 0.1.56 \\ 0.94 \\ 0.94 \\ 0.1.56 \\ 0.94 \\ 0.94 \\ 0.1.56 \\ 0.94 \\ 0.1.56 \\ 0.94 \\ $		5 11 17 12 11 14 5 5 8 8 6 6 7 7 7 15 13 16 9 9 7 7 11 13 8 8 6 10 11 11 11 12 12 13 14 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	8 17 13 8 10 15 15 15 15 12 12 15 18 13 13 13 13 13 15 15 15 12 12 14 10 18 13 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	16 12 13 10 12 13 15	7 2 3 9 3 11 5 7 7 3 2 2 6 10 5 8 7 7 7 13 13 13 14 4 5 3 8 8 5 5 12 8 5 8 9	ne. se. ne. ne. ne. ne. ne. ne. ne. ne. ne. n	G. H. Whiteside, C. S. Bushnell, R. B. Hodgson, O. R. Thacher, Wm. Hoods, C. L. Hobbs, H. H. Ten Broeck, C. C. Peck, J. J. Blomquist, J. B. Lutterloh, S. S. Fesler, R. W. Storrs, O. B. Webster, C. T. Smith, E. S. Hubbard, Miss E. Wigglesworth, W. B. C. Duryee, G. L. Brodrick, Miss M. M. Gardner, T. C. Nicholson, John Schnabel, J. B. Escott, B. A. Tibbits, W. J. Krome, G. A. Angevine, W. H. Miller, U. S. Weather Bureau, Mrs. W. C. Caldwell, A. M. C. Brasch, U. S. Weather Bureau, J. A. Simpson, W. B. Knight, J. D. Henry, Griffing Bros, Co, E. J. Vann, J. F. Farley, W. J. Watson, F. Ulrich, U. S. Weather Bureau, G. A. Chalker, W. H. Trimmer, E. C. Potter, Miss Addie Grubb, F. Nordman, J. D. Graham, Jas. Thomson, U. S. Weather Bureau, C. M. Deschant, E. B. Trask, J. H. White, Dunellon Phosphate Co, W. A. Emmons, E. F. Joyce, G. Schneider, Satsuma Co, Mrs. W. B. Steele, W. H. Markham, U. S. Weather Bureau, C. M. Deschant, E. F. Joyce, G. Schneider, Satsuma Co, Mrs. W. B. Steele, W. H. Markham, U. S. Weather Bureau, C. A. Dalbaugh, F. M. Taylor, Curtis Jones.
Alabama. Alaga Alaga Anniston Ashville Auburn Benton Bermuda Birmingham Alaera	Calhoun	105 728 685 732 149 701 500	6 20 18 29 10 24 23 10	69. 4s 68. 0	+ 5.2 + 5.9 + 7.1 + 4.8 + 3.6	94 95 97 94* 93	6	36 33 39 40¢ 37	23	30 34 33 37 29	4. 32 1. 45 6. 07	- 0.18 + 1.31 + 0.25 + 1.97 - 0.98 + 3.73 - 0.30	1. 62 1. 43 1. 50 1. 52 0. 49 4. 65 1. 45	0 0 0 0 0	7 8 4 8 6 5	12 19 10 13 11	7 9a 7 14 15	12 2a 14 4 5	se. nw. sw.	James L. Willis U. S. Weather Bureau. George R. Cather. Dr. Jas. T. Anderson. S. T. Pruitt. M. J. Morris. U. S. Weather Bureau. L. G. Privett.

TABLE 1.—Climatological data for October, 1911. District No. 2—Continued.

			Pears.	Tem	peratur	e, in	degre	es Fal	rent	neit.	Pre	ipitation	, in in	ches.	lays, re.		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 6 0.01 inch or mor	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing wind d	Observers.
Alabama—Continued.				1																
camp Hill	Tallapoosa	738, 594 331 590	10	69.8	+ 5.2	96	5	35	23	45	2.38 3.22	+ 0.65	1.00	0	6	18 15	6 14	7 2	8.	Dr. Lyman Ward. Joe L. Daniel.
itronelle	Mobile	331	23 18	72.2	+ 4.1	96	5 5	40 35	23 23	28	1.76	- 1.25	0.54	0	4 6 7 4 6 7 7 2 4	16	10	5	SW.	Rev. W. H. Rowe.
lanton	Chilton	590 100	18	68.8	+ 5.6	96	5	35	23	33	2.59	+ 0.27	0.76 2.00	0	4	11	0	20	se. n.	Wallace C. Edler. T. H. G. Cook.
ochrane	Pickens Walker	334	20		+ 5.3	95	1+	32	23 23	38	3.58	+ 1.04	1.50	0	6	17 13	9	5	S.	Scott Maxwell.
ıllman	Cullman	802	3	66.0		98	3	32	23	36	3.82		1.15	0	7	13	13	5	nw.	Eugene A. Grayot. Dr. W. B. Fulton.
adevilleaphne	Baldwin	760	6 20	72.8	+ 4.2	94	6	40	23	30	2.86 2.13	- 1.94	1.38	0	2	18	2	11	e. nw.	John H. Young.
emopolis	Marengo		19								1.03	- 1.06	0.40	0	4	22 14	2	7 12	nw.	George E. Pegram.
ufaula	Barbour	200	27	68. 2	+ 3.4 + 7.0	93	6 7 1† 6	38	23	29	2. 26 0. 35	- 0.08 - 1.65 - 0.51	0.90	0 0 0 0 0	10	18	5 0	12 13	ne. e.	Dr. J. B. Whitlock. Robt. L. Whiteomb.
vergreen	Conecuh Escambia	285 91	27 19	72.0	+ 4.6	101	1+	40 38 41d	24	40 35 29	1.93	- 0.51	0.51	0	5	25	0	6	8.	T. J. Farris.
lomatonort Deposit	Lowndes	520	27	60.5	+ 4.4	95 .	6	41d	24	29	2.15	- 0.10	1.25	0	4	13d				J. F. Hattemer.
adsden	Etowah Coosa	621 826 220	27 16	68.6	+6.7 + 5.9	98 99	3 6 7	37 35 40	23 24 24 24 23 23 23	44 35	2.52	- 0.07 - 0.12	1.24	0	8	13 16	6	12 10	ne. 80.	D. P. Goodhue. Miss Daisy Buice.
reensboro	Hale		32	68.6	+ 4.2	93	7	40	23	26	2.04	- 0.07	0.78	0	4	.21	0	10	n.	W. E. W. Yerby.
reenville	Butler	444	32 10						23	45	2.99	+ 1.00 + 0.51	1.49	0	3 4	21	5		n	E. M. Lewis. Prof. H. O. Sargent.
amiltonighland Home	Marion Crenshaw		15 19	71.4	+7.3 + 5.0	101	3† 6	30 41 36 37	23	45 29	3.14 2.22	- 0.16	1.65	0	6	13	4	14	n. ne.	Prof. Samuel Jordan.
ivingston	Sumter	160	27	68.0	+ 4.5	94	5	36	23 23 23 24	32	1.95	- 0.10	1.14	0	4	20	0	11	6.	Robt. L. King.
ock No. 4	Talladega	510	14	68.6	+ 5.8	97	3 3	37 40	23	38	2. 27 3. 90	-0.11 + 1.35	1.00	0	8	20 8	17	10	ne.	U. S. Engineers. Mrs. A. L. Awbrey.
aple Grove	De Kalb	1,595	18	01.8	+ 7.1	100	0	40	24	30	6.58	+ 1.00	3.42	0	6				Me.	E. Mason.
ilstead	Macon		8								3.60		1.80	0	6					Evie Oswalt.
obile	Mobile	84	39	72.6	+ 5.5 + 5.1 + 4.7	93	5 5 6	44	23	26 27	2.89	- 0.29	2.20 1.58	0	7	11	13	13	n. ne.	U. S. Weather Bureau. Do.
ontgomery	Montgomery		18	70. 2	+ 4.7	101	6	44 42 36 32 41	23	34	2.06	+ 0.47 + 0.01	0. 92	0	5	15	10	6		Dr. J. Huggins.
neonta	Blount	857	18 17	67.0	+ 6.4	95	1+	32	23	36	4.57	+ 1.97	2.76	0	9	15	5	11	n.	Aquilla J. Ketchum.
pelika	Lee		32	67.8	+ 3.7	90	31	41	23	25 31	1.96 2.95	- 0.95	0.70	0	8	17 19	0 4	14 8	ne.	A. H. Read, jr. Miss Lucy Sellers.
zark	Dale		11	69.4	+ 4.9		51	36	23	35	3.44		1.22	0	7	15	9	7		Jos. B. Bell. W. N. Horn.
ushmataha	Choctaw		20	69.0	+ 5.0	975	3 5	36 36 ^b 37	23	33b	1.81	- 0.46	1.17	0	3	18	19a 3			W. N. Horn. Charles F. Brislin.
elmapring Hill	Dallas	147 312	31		+ 4.3	97 94	4	40	23 23 23 23 23 23 23 23 23 23 23 23	35	2.60	+ 0.55	1.18	0	7 5.	130		10 8a	e. n.	Spring Hill College.
alladega	Talladega	554	21	69.0	+ 5.1	97	6	38	23	34	1.73	- 0.41	0.60	0	5	18	6	7	w.	W. E. Henkel.
allassee	Elmore		20						004		3.02	-0.41 + 0.99 + 1.14	1.21	0	7 5	20	0	11		P. A. Noble. J. G. Forster.
homasville		385 581	20	72.0	+ 2.9	95 100	5	36 41	23†	35	2.97 3.06	+ 1.14	0.91	0	10	7	18	11 6	n. ne.	Frank L. Zimmermann
royuscaloosa			30	68.7	+ 5.2	98	5 3	38	23†	34	5.01	+ 3.09	2.83	0	5	20	0	11	n.	W. S. Wymann, jr.
uskegee	Macon		11	70.8	+ 3.4	99	4†	35	19	41 27	2.50	+ 3.09 + 0.42 + 1.42	1.26 2.40	0	3 7	5 14	23 14	3	ne. w.	Prof. Geo. W. Carver. P. L. Cowan.
nion Springs			24 25	68.4	+ 4.9 + 2.0	93	6 4	38 35 39 42 32	23	38	4.39 0.72	- 1.36	0.53	0	3	13	7	11	nw.	F. D. Stevens.
alley Head	De Kalb	1,031	26	66.4	+ 6.4	98 95 99	3+	32	23 23† 19 23 23 23 23 23	36	6.52	- 1.36 + 3.61 + 0.87	3.73	0	6	21 16	7	3		M. T. Floyd, M. D.
/etumpka	Elmore	205	19	72.4	+ 6.2	99	3†	39	23	35	3.07	+ 0.87	1.33	0	5	10	0	15	n.	U. S. Engineers.
Mississippi.		010	-	00.0		07	24	99	99	90	1 20	0.45	0.48		5	18	0	13	n.	L. D. Godfrey, ir.
berdeen	Monroe Oktibbeha	424	23 21 18 20	65.8	+ 5.5 + 1.4	97	3†	34	23 23	39	1.52 1.28	- 0.45 - 0.69	0.50	0	6	21	9	1 8	n.	J. R. Ricks.
ay St. Louis	Hancock	28	18	73.5	+ 4.7	192	2	41	23	33	2.50	- 0.38	1.00	0	8	21 15°	2 3n	8	S.	Brother Stanislaus. Miss M. Josie Pope.
iloxi			20 17	64.4	+ 5.4	91 91	2+	36	23 23 23 23 24	28 31	4.37 1.76	+ 1.39	3.09	0	4	17	9	5	sw.	Dr. D. T. Price.
oonevillerookhaven		500	23	69.6	+ 2.7 + 4.2	97	1† 2† 2†	36 35	24	40	3.33	+ 0.93	1.92	0	5	15	8	8	0.	W. J. Bee.
olumbia	Marion	110	7							43	3.47		2.20	0	6 5	19 15	3	13	nw. ne.	N. R. Drummond. J. B. Love.
olumbus rystal Springs			23 19	68 4	+ 4.1	100	3†	32 35 31	23 23	35	1.18	- 1.13 + 0.18	2.28	0	4	22	5	4	He.	D. H. Miller.
dinburg	Leake		. 3				4†	31	23	45	0.53		0.23	0	5	19	4	8	ne.	J. Y. Blocker.
nterprise	Clarke	248	6								3.80	*****	2.00	0	5 6	14	5	12	n.	J. B. Thompson. A. L. Summers.
ulton	Forest	189	18	70.6	+ 4.7	98	2†	35	231	41	0.96	- 0.88	0.50	0	2	23	0	8	n.	T. C. Spence.
azlehurst	Copiah	460	21	68. 2	+ 2.4	96	4	36	23	37	1.33	- 1.25	1.03	0	4	18	2	11		J. D. Granberry.
ickory	Newton	326 280	24	60 6	1.54	00	4	32	23	40	1.40	- 1.30	0.70	0	6	13	120	30	ne.	T. N. McMullen.
cksonake.	Hinds	280 446	23	09. 0	+ 5.4	98					0.60	- 1.58	0.42	0	2	15	12	4	nw.	A. S. Nall. Mrs. Eddie McNeel.
ake Como	Jasper		8	68.8		97	5† 6† 4† 6 5 7	33 35	23	41	1.08		0.74	0	3 5	19	6 7	5		C. Thigpen. Thomas W. Flynt.
aureleakesville	Greene	241	17	72.2	+ 5.3	95	6	420	23 25	38	1.72	+ 1.27	1.86	0	7	16				Dr. Sam Pool.
ouisville	Winston	561	22	1 OA T	+ 0.0	97	5	33 39	23	40	1.27	- 0.63	0.52	0	5					B. T. Webster.
cNeill	Pearl River	230		71.4		93	7	39 33	23	33	4.18	+ 0.30	0.63	0	6	14	141	11		Prof. E. B. Ferris. Finis E. Carleton.
acon	Noxubee	185 415	23 15	07.8	+ 4.6	98		36	23 23		3.03		1. 20	0	6	8	16	7	n.	Miss Ruby V. Roberts.
eridian	Lauderdale	375	21	67.8	+ 4.8	92	4	36	23	31	2.56	- 0.14	1.17	0	8	15	9	7	ne.	U. S. Weather Bureau.
errill	George	76	6			07	04	99	22	42	3.58		2.20	0	6	14	12	12	n. se.	L. C. Helms. Dr. G. A. Teunisson.
kolona	Chickasaw		23	69.6	+ 4.8	97	2†	32 35	23 23 22 23 23 23	37	1.74		0.60	0	4	14	8	9	n.	D. H. Shell.
ascagoula	Jackson	15	23	72.6		92	6	40	22	30	6.51		2. 45	0	7	14	4	13	8.	Frederick Hess.
earlington	Hancock	10	23	71.9	+ 4.5	94	2† 5	39 33	23	33	3.39	+ 0.58	1.85	0	6	14	11 10	6 7	e. nw.	Miss Annette Koch. I. S. Rea.
	Kemper		. 6	08. 4		360	0	00	40	00	2.53		1.18	0	6	2.4	1 20			George A. Floyd.
orterville	Clarke	197	6	1					Lane -		46, 4343		1 1 10	5.5	100					
orterville nubuta upelo aynesboro	Clarke Lee Wayne	197 278	12 24		+ 3.7	93	6	36	23	34	1.87	0.00		0	4	11	8	16 10		George A. Floyd. W. H. St. John. R. S. Burke.

^{*,} b, c, indicate respectively 1, 2, 3, etc., days missing from the record.

**Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 2, South Atlantic and east Gulf States.

Ota Alama	Waterbada														1	Day o	of mo	onth.															
Stations.	Watersheds.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Virginia.												1																					
vonia chanan [[Jamesdo			T.				.39	. 06		.09		. 28			.01			1.80					.64									. 3
llaville	Chowan	****	.26	. 20				. 45				. 53	. 80					. 93				. 08		. 47				1111	.21				1
pe Henry	Coast		. 02					. 16				.14	.14					. 07	. 54			. 04		. 13					. 13			. 21	1 1
arlottesville	James Roanoke	. 05	. 07		. 05			1.05			.15	.05	.11			.03	****	.30	1.45	****			. 55	1.00					.10				
umbia	James	T.	.10					.46	.00		.16	.48	.40		1	T.		1.56					1.05			****			.10		****		
ville	Roanoke		T.	. 19	T.				. 56			. 96	. 22					T.	2.06				T.	. 94									
mond Springs	Coast		.02	.01	. 05			.06				.19							. 68		. 01	. 23		. 33					. 40				
Springs	James	. 08	. 44	. 02	****			. 23			.36	.10				.70	1.40	.80	. 03	****	.02	.01	.50	. 05		****						****	
siter	do							.15					1.20						. 55					1.10									
ington chburg	00	. 18	. 20					. 23			. 23	.04	.05		. 29	.22		2.00	.01				. 92									. 01	
Castle	do	. 172	.00	.00			1	. 28		.37	.72	.09	.00		18		****	.10	1.20					1.15	****				****	1	****		
port News	do	. 02	. 03					. 42	. 12		****	. 33						.04	. 93		.04	. 07		.27				. 09	. 23			.02	2
folk	Coast		. 05	.04				. 62				. 13	. 35					.09	. 63		. 03	. 05		. 21					. 23			. 20	3
dolph	Roanoke James	T	.02	. 23	****	****	****	. 43			.03	.70	. 21 1. 27				T	.39	1.10		Tr.	.02	1.00	1.17								.01	i
ky Mount	Roanoke		. 26	. 03						. 26									1.78					.12									1
double (mass)	do			. 23				.84	.71										1.16				.75	. 50									
ttsville (near)	Chowan James			. 22		****	****	15	35		****	15	. 67			****		70	. 95		.08	T.	.16	.20				. 12	.10		****	****	
							1	1						****					****		****	****	. 20			****				1		****	1
forth Carolina.																												1					1
emarle	Pedee									T		.16						1.46	1, 21				. 95	.04				03	. 08				1
ıfort	Bogue Snd			. 05									.09				1.04	.16	. 65		. 02			. 65	.11		1		.50	.01		. 21	i
aven	Pungo											****				****		. 01	1.13				****					·	1.60			1.00	0
vers	Pedee Santee	. 05	.00		T	****		. 19	L.	.13	.62	.43		****	1	. 50		3. 25	.14	****			1.84		****			T. T.					
ybeate Springs.	Cape Fear								T.	.02	T.	. 64						2.34					. 20					. 18	. 60			T.	1
el Hill	do		. 02	· · · ·					.11		.01	. 45							1.90		T.		. 05	.14				T.	. 40				4
lotte	Santee	02	01	T.	.01				T.	. 02	2.20	. 21						4.02	04									.14				T.	
ham (near)	Neuse		. 05					. 23			. 02	. 45						.14	1.96				. 24					.09	. 08				1
etown	Chowan		T.	. 68						T.		.08	. 08					T.	. 81			. 04		.16				.10				. 04	
nton	Albemarle Sound.			. 35			****						. 30			. 75			1.10					.20					1.35			. 10	1
bethtown	Cape Fear						.90														. 91	. 81	. 90	.70					. 99				
eld (near)	Tar												. 30						.81					. 24						. 15			-
etteville []	Cape Fear Neuse			T	****							T.	. 83			56			1.53			T.		T.									
nam []	Cape Fear			.10					. 21			.39			1				1 50					1.00					. 35				1
nsboro	do								. 43			1.03	. 20						1.25				. 03	. 95					.16				1
nville	Tar Pamlico Snd			. 19					.31			T.		. 01		. 13		.ii	. 79	. 01		.01		.06					.51	.78		.14	:
derson	Tar & R'n'k	T.	. 03		****			.76	.04		T.	T. 36	. 03			.19		1. 24	. 21	****	T.		. 79	.32	****		****	.24	.08			. 04	1
gs Mtn (near)	Santee		.02	. 03								. 90						1.30					1.85	. 01				. 02					
iton	Neuse Santee	08		.12	****				45	10	1 16	.01	. 01			T.	****	3.50	1.21			. 03	08						1.33			.13	
olnton	do								. 20	.10	1.10	1.08			1			1.32	. 00	****		****	1.52		****			. 03	.01			****	
sburg	Tar								.70		.50	.50							1.14					. 22					.70				
teo	Roanoke Sd.								16			. 05	. 17	.01		19		****	2.55	• • • •				.25					2 10	1. 46		1 99	5
on	Santee	.11	.01	. 09	.06				.16	.04	1.84	.16	.02			. 10	****	3.06	. 03				1.05	. 20			.01	.03	. 02	.11		1. 44	1
lletown	Pamlico Snd												T.			. 67			2.50					.16	T.	.02			1.66	. 05		. 24	A
roe	Cape Fear Pedee	Tr.				****			. 15	.00		. 13	T.					1.31	1.61				.99	.15					. 49	.02			
anton	Santee	. 07		T.		****			T.	.03	1.17	1.30						2.95	.30		****	****	. 91		****	****		.08				****	1
nt Airv	Pedee	. 07	.34		. 10			. 04			. 43	.10	. 02			. 20		2.94	.30				1.14									T.	1
nt Holly [[Santee		****	.02 T.					. 50		T.	T.							1.42		T.	****	. 60	1.00				T.	T.			T.	
se [[Neuse		****	.16			****		.30		1.	.10	. 32				****		1.68		1.	****	****	. 35	****	••••	••••	****	. 40	.05	••••	1.	1
bern []	Neuse			. 27									. 05			. 57			3. 41	.04		T.		.11	.10					1.82			
ersburg		****							****			1.30	T.					T.	1.05			****	.30	.10		****		90	1.10 1.35			. 30	-1
igh	Neuse	****	.19	.02				. 02	. 03		. 01	. 19	.01					1.90 1.59	. 20		T.	.01	. 21		****				. 41		****	.04	
seur	Cape Fear								. 12	.12		. 40						2.70			.02		. 50					.01	.12			.01	i
dleman		****		10			****			.37		.71						00	$\frac{2.00}{2.75}$.96					-11				-
k House	Savannah	. 43	. 03	. 01					. 02	.03	2.39	.06					T.	4. 21	a. 10				. 69	. 96	****		****	.04			****	.10	5
cingham	Pedee									.30	.30							1.03					.30					1.70				.11	L
ky Mount boro	Tar Roanoke	****		. 04				40	. 45		95	. 02	. 12		****				1.50				1 17					10	. 65			****	-
n	Pedee					****		.10			. 45	.48						2.15					1.15 1.54					.19				****	
bury	do			. 05								1.07	. 05						2.30				. 20	. 50	. 25								
n [[land Neck	Roanoke							.10				. 05	. 60					2.10	03					.18								.04	
a	Neuse								. 10			.60						1.40	. 50					.09				. 60			****	. 04	
e	Pedee		T.	T.	T.				. 31	T.	. 39	.60						4.00	. 08				1.95					. 10					
hfield []	Cape Fear Neuse	****	T.			****				T.		T.	.15			••••			2. 16 1. 13			T.		10					1.88	.06	****	. 66	
v Hill	do			. 13				. 03	****	Т.		.13			1	.04							****	.16			****			.06		.13	3
hern Pines	Cape Fear										T.	. 45						. 40	. 85				.30					. 25	.87			T.	1
hportesville	Pedee								48	.18	20	T.	. 09			. 95		. 43 2. 00	. 75				T.	. 35			·	. 03	.12			. 05	
oro	Tar			, 01					, 32	. 16	.00	. 02	.06	****				2.00	1. 22				1.92					. 03		.17			
ion	Roanoke		T.	.17	T.				. 37		T.	. 06	. 24						1.01			T.		. 36					. 39	.07			
teville	Waccamaw . Cape Fear			****					• • • •			.30	• • • •						2 01	****			т.									. 95	
mington	do								T.			1.04	T.		.06	.01					****			.07				****				. 32	
outh Carolina.																																	-
n	Edisto Savannah	. 75	.31									3.38						1.85	1 60				4. 60					. 85	1. 10			. 34	1
ndale [] erson	do	. 09			.03				****	.07	.34	.40	. 23	****				1.24					1.70	. 65		****		.18					
sburg	Edisto	. 53	.74									. 97	. 43						1.96				. 37	1.39					. 98			.02	
kville []	do	677	79										. 05						- 00										1.54				

TABLE 2.—Daily precipitation for October, 1911. District No. 2—Continued.

Stations.	Watersheds.	_				1	_			-				1	- 1	Jay	of mo	men.														
197 10 11	I I I I I I I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
outh Carolina-Con.															-									-								
owman	Edisto	1.24									.51		. 22					.51	. 42				. 38					. 28	.53			.38
alboun Falls	Savannah Wateree		.64		••••							1 10	100	1					1.94	.06			.70	.53 1.30					1.02	.07		
atawba []	Catawba	. 26			T.	. 02			. 04	T.		1.24	. 14						2.04				. 60	1.00					.52	.03		
happells harleston	Saluda Ocean	1.81	1.06		T.	••••				••••	.37	24						.16	2.46 .26	••••		••••	.06	1.60			****	T.	.32			.37
heraw []	Pedee									. 15		. 67	. 43						1.24					.51					1.40	. 05		
lemson College	Savannah Congaree	. 99			T.						1. 34	1.00	. 19					2.04 1.06	. 01				1.96 1.75				****	1. 48	.49			.26
onway	Waccamaw .						1	100					96		Page 1	.14			2, 22					.20				. 21	. 05			
arlington	Pedee Little Pedee.	T.	T.	T.					T.		****	1:11	. 07						1.74				T. T.	.19				. 48	4.62			.34
ffingham erguson	Lynches Santee	T.	1.63								.22								1.80 1.40					. 40					2.05	. 95		
lorence	Pedee											.08	. 52						3.24					. 48					2.90	.87		
eorgetown	Ocean Saluda	.01	.04	01	T				10	T.	. 15	. 05 2. 67 1. 08	10		T.			. 45	. 65 1. 01					1 40					. 15			. 15
reenwood	Wateree		.29						.10		.07	. 80	. 19					. 25	1.60				1.38	. 50					1.05	. 05		
eath Springs	Wateree Edisto	1 40									.09	.90						1.32					1.33					. 75	. 86			
ingstree []	Black Savannah	1. 20	.55									1.27	.35						1.30				. 23	.34					1.00	. 05		.54
lberty	Savannah	3.60	T.	·	:02				.01	. 05	2. 10	.70	.80					$\frac{3.80}{1.76}$				1 20	2.99					. 10	T.			T.
ewberry	Savannah Saluda	1.13									. 28							1.35	.30				1.90					. 73	.10			
elzer II	Cooper	1.50	. 84								.10	.60	. 48					. 50	1. 22				1.76	. 32				.27				25
inopolis	Edisto		1.82								.19	.29	.20						1.90				. 30	. 94								. 20
. Matthews	Santee Saluda	1 20	. 85									4.93						1 20	1. 27				2.00	. 43					2,30	.00		
antue	Broad	. 49	T.	T.				1		. 04		1.13	.11					2.00	.16				.10					. 50	.22			. 05
mith Mills	Pedeedo		0.4	1	100				-		. 26		. 68					1.40										2 85				.33
ociety Hill partanburg	Broad	.30	T.		. 02				.19		. 03	.58	T.					.30	1.70				. 90	. 50				2.00	.12			
immerville	Ashley Edisto	1.80									T.	. 15						. 18					1.37	. 37				1 44	.02			
alterboro	Ashepoo	. 79			T.						. 49	. 97						. 63	. 61				. 35	. 44			Lane.	Line	. 92			
innsborointhrop College	Broad Catawba	. 65	02	· ·	T.				25	T.	.75							2.48					1.70					1.10				. 15
massee	Combahee		1. 15						. 20		. 10		.30					. /4					1.01									
Georgia.											1																					
bbeville :	Ocmulgee											.24	. 08					. 22	. 65				. 82	. 27		T.	. 30	T.	.11			.10
dairsville	C008a								.94		.44	T.				2.00		T.									T.	10	.06			
lbany llapaha mericus	Flint							1				L. Carrie						.18	. 38				. 66									.12
mericus	Flint											. 85						2.00					2.50						. 80			
thens tlanta	Chat'ho'chee	. 24		T.	T.					.34	. 69	1.14					1. 29	. 54	.92			.01	. 55	.02		T.	****	1.02		.02	****	.37
ugusta	Savannah	. 01			T.					· · · ·	2.04	. 66	96					. 97	70				1.00				m	2. 43	.06			-
ainbridge	do				.23					.01	.70	.71	. 30					1. 15	. 10				2.00				A .	.56	.02			.81
akely	Chat'ho'chee																	2.00	45				1 97			T.	70				. 98	****
utler	Flint											1.72					• • • • • • • • • • • • • • • • • • • •	.00	1.17				. 40	. 51				. 40	2, 45			****
anton	Coosa Savannah			••••					T.	1.98	. 86	2.98	. 30					9 05	50				. 18	15					0.5	10		
avton	do	100	- 22	7.5					T.	.25	2.50	.48					T.	3. 47	.04				. 81	. 10				T.	. 95	. 10		****
lumbus	Chat'ho'chee									.06	. 03	. 16 1. 20	. 01	6				. 05	1.02				.87					. 98	. 02 3. 30	T.		T.
vington	Ocmulgee Chat'ho'chee								. 30	. 03	. 26						1.45	1.59														.78
ahlonega	do	. 23		. 61					. 32	. 34	3.97	T.					. 20	2.57		T.		T.	. 41				. 02	. 04	. 03	T.		.07
iamondublin	Tennessee								.06	.41		. 43	. 60					. 10	1. 44			T.	. 21	.33			. 02	. 20	.54	T.		
astman atonton	Ocmulgee	T.										. 05	. 61					. 65	. 39		T.		1.40	.18				1.45	. 41	T.		T.
berton	Oconee Savannah	. 45			.10		****		****	. 80	T.	T.						1.65					1.75					. 82				.10
xperiment	Chat'ho'chee									. 35		.70						. 75					. 95					1.31	. 20			.30
inesville	do								****	.20	1.57	. 55			****		.05	. 25	.58	****			. 48						.05			
ennville	Altamaha			T.							1.37	40			T.		.09	. 53					.74			T.	T.	.02	T.		****	1.78
reensboro	Coosa	.08 T.			T.		• • • •		. 23	.23	.68 .70	.04					1.14	2.17	.50	****		****	1.46	.56	****	****	. 04		3.30	****		- 07
riffin	Oconee Chat'ho'chee	T.								. 25	. 09	1.10						.54	.56				. 15				T.	. 20	1.30			40
arrison	Ogeechee Savannah	••••					••••			.16	.10	.30	• • • • •					$1.00 \\ 1.32$		****	****		. 42 1. 26		****	****	****	. 32	.01		****	. 46
artwell	Ocmulgee											.30	. 22					.18					.11	. 97				T.				
sbonost Mountain	Savannah Chat'ho'chee	.08				****	****	****	****			. 07		****			.12	. 45 2. 40			****	****	2.00	****	****	****	. 05	. 35	.16	****	****	.03
ouisville	Ogeechee	.02									1.57							.11	1.22				. 80					1.00				.60
mpkin [[Ocmulgee Chat'ho'chee	••••	••••							T.	1.56	. 60	. 82				T.	.48	1.32		****	.17	.17	. 44			T.	.23	. 15		****	T.
eon. arshallville []	Ocmulgee									.54	1.07						. 07	1.65				. 52	. 23					1.82				.06
illedgeville	Flint				.41				****	1. 25	Т.	1.17	.00					1.00	2.98 1.68	****			1.89				. 03	. 36	.62			1.21
illen [ineral Bluff	Ogeechee		. 20						****			1. 45 . 85	T.					. 20	2. 10	****			2.00			****	T.		.50	.10		T.
ontezuma II	Tennessee		.08	T.							1.00					****	. 05	2.53	1.00			****	2.64	.76	****		.64	T.	.05	.03	****	T.
ontezuma	Ocmulgee Chat'ho'chee									. 85		.19						1.07	.77				4.09	. 07				.70	. 81			
orcross	Chat'ho'chee									.08	.78	. 64	. 48					1.00	. 60				.46			****			2.00			
oint Peter	Savannah	. 41			T.					1.87		. 23					1.63						1.63					1.41				
oulan	Suwanee			:						T.	.03	.04					.50	. 60	.10			T.	. 28		****		. 03	.04	20		****	1.00
uitman II	Suwanee																	. 69	1. 25				1.62									.82
amhurst	Coosado							. 20	.50		1.30		• • • • •				. 30 2. 25	2.95				****				****	T.				T.	T.
esaca	do	.17						.20	.57	.02	.11	75						1.23	.46				. 02				T.	.13	T.			
George II						-			100	1000	773		-		-			T.	. 48				.02	.19				. 40			00	. 88

TABLE 2.—Daily precipitation for October, 1911. District No. 2—Continued.

Stations.	Watersheds.		_		1			1	-			1	1		-	-3	of mo															-	
1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Georgia-Contd.													+														-		-		17		
tatesboro II	Ogeechee	- 06		T	T		1.04		T		15	m			T.		T	1 04				02	45			T.		T.	m			. 11	9
albotton	Chat'ho'chee									. 03	. 60						. 15	1.30					2.00			23	.42	58	T.		D. 1	1.11	5
allapoosa	Coosa Ocklocknee.	T.								. 20	. 22	.45					.04	1.52	. 87				.10			· · · ·	. 03	.10	. 05			2.50	3
ifton	Suwanee											1.	.01				.03	.73				. 00	. 69		****	1.	.02	****	****	****	****	1.63	4
occoa	Suwanee										1.20	. 21						1.47	.71				1.10	. 05					.10				4
aldosta	Suwanee Ogeechee Savannah		1.10				****		1						Inches.			· 243	1. 187				4 4 4 4 30	. 453				- 398	Lange Land			. 65	10
Vashington	Savannah				. 12						T.	1.05						.17	. 67				1.76	. 63				. 20	4.10			4. 23	8
Vayeross	Satilla Savannah				T.					****	.01	1.20	.07					. 65 T	. 73				T.	1 10			.02	.02	1.70	T		. 45	3
Vest Point	Chat'ho'chee										.15	.00	. 01					. 13	.14				.08				. 30	.70	.50	. 01		T.	2
Voodbury []	Flint					****						-77						. 85	. 53				1.25	****		****	.20	. 38	. 24				4
Florida.													1	-														201					
palachicola	Coast Peace Creek. Waccasassa . Kissimmee. Peace Creek . Apalachicolado Withla-coorbee.									T.			1. 04		1.05	.86	. 04	. 92	1.68				25	.06			T.		53			3. 44	6 5
rcher	Waccasassa.					****		T.						. 10		. 02	. 44		1. 42				. 37			T.	T.		. 28			1. 10	3
von Park	Peace Creek.			****	T.	***			****				T.		.05	1, 29	03	. 78	1.35	. 20		T.	. 01	91		. 12	. 07		. 45	. 03	. 23	. 58	3
ountstown [[Apalachicola												T.				. 40	2. 40	1.00			.32					.00		. 20	. 10	. 02	1.77	4
radentown	Withla-				25			25							1. 16			. 71	2.10				1.69					. 55				28	6
	coochee.			****	1 20			. 40																				1. 40				1	1.
rabelledar Kevs	Coast			****							. 52		. 10		. 65		.70	. 32				2.05	. 52					2				3. 52	
rmont	Lake				1			100			. 52		****		. 63		. 12	. 05	1. 45				. 97			. 40	1. 20		2.00			1.12	
Funiak Springs !!!	Chocksw-		1	Annual Control	1					1	02	615	79	•				80	99				. 32						T.				
Land	St. Johns									T.						. 04	. 05	. 11	. 59				T			. 10	.19	. 10	. 96		T.	. 39	1
stis	Lake	****				****			. 65			T.	. 20		. 06		. 34		. 94		. 05							. 24	. 81			.71	1
heral Point	hatchee. St. Johns Lake St. Johns Coast Peace Creek. C a l o o s a hatchee.	****			****			****			01		.12		T.	. 03	T.	. 23	. 27	. 63	. 05					. 60	.37	. 24	. 53	.07		. 53	1
t Meade	Peace Creek.				T.								T.		. 81	1.00	. 10	. 55	. 97	. U.			.08	. 07	****	T.	. 15	T.	1.56	.01	T.	2.20	
rt Myers	Caloosa.	T.	T.	T.										. 35	. 15	.05		.1.8	. 80				T.						T.		. 68	1.68	1
rt Pierce	Indian															2, 30	. 20	. 40	. 70	. 10					. 70	. 20	.50		.60	. 10	2.10	.10	1
nesville []	Indian Lake do Nassau Coast Lake Withla-coochee.							. 02						. 10			*	*	1.08				***	. 19			. 03	. 05	. 03	T.			
smereliard	Nassan.					****			T.	15			T.			. 03	. 75	. 25	. 77				. 03	20	****	. 13	T.	.30	. 25		T.	. 60	1
mestead	Coast					. 23		. 01		. 10			. 13	. 93	. 80			. 10	. 01	2.20	. 20			. 02	. 13	.06	. 04	.11		. 03	. 10	. 12	
poluxo	Lake														1.30	2. 25	. 27	. 67		. 05					. 20	. 29	. 49	.10	. 20	+14	. 21	1. 45	1
orness il	coochee.		****			****							****		. 40		. 04	2. 29	***-				. 55	****	****	.00			****	****		. 66	
ksonville	St. Johns	****		****	T.				T.			. 06	. 04		T.		. 12	.32	T.			T.	T.			. 09	1.78	. 11	. 03			2.71	1
nstown	St. Johns Suwanee do Coast. Kissimmee Suwanee do St. Marys. Suwanee Indian. Apalachicola Indian. Coast. St. Johns Escambia Aveilla						****			T.		. 55	. 05		07		67	. 90	10			. 05	2. 10			10		. 05				5. 25	8
y West	Coast	. 06		. 01	T.	. 09		. 03	T.	. 04	. 10	.14	. 54	1.04					T.	. 25	T.		. 26	.10	.38	. 19	1. 39	. 04	. 45	.35	. 28	. 03	4, 44
ke City	Kissimmee	****										m		T.	T.			. 52	.74				T.	T.			. 10	. 25	. 70		. 12	1.35	6.0
re Oak	do	1.40										1.	1.			1.		1. 70	1.30			.90	. 46	1. 30			T.	T.	1. 70	T.		1. 4.00	4
eclenny	St. Marys									. 11			. 16					. 19					****	. 50		. 04				.89	1.50	.70	1
dison []l	Indian					****	****	****		****		03	. 06			1 05	****	. 40	1. 56				. 49	. 25		****	16	25	10	1 99	1 21	. 59	1
rianna	Apalachicola										. 07	.72	. 16					1. 05	2. 45	. 00			. 23				. 10	. 16	. 10	1. 44	1.01	1.36	
rritts Island	Indian	****	****							19		T.	. 60	9 10	T.	1.97	T.	. 42	. 19	10			00	T.		. 03	. 05	. 04	. 06	. 21	. 80	. 65	100
ddleburg	St. Johns Escambia									. 10		.01		2.10	1.	1.	.14	. 11	.43	- 18		****	.00	. 03	.00	. 19	. 60	. 23	. 47	. 40		1.35	100
nticello	Escambia								T.	1.10	1.98							1.75															1
unt Pleasant	Apalachicola	****	****	****		****	****	****			T	. 12		****		****	00	2. 30				. 73	1.31									4. 00 2. 45 .10	1
w Smyrna	Coast										. 04			. 08		. 03		. 08	. 25	. 10			. 10			. 13	. 13	. 05	.38	1.88		. 10	
w Smyrna nnge City ando usacola	St. Johns			****		****			. 39				· m		. 03		T.	. 13	. 45			· · ·	40			.39	. 13	. 06	. 84	****		.78 .60	1
ısacola	Coast									.39	5. 16	. 88	.03		T.	.01	1. 24	. 39	. 75			.16	T.	****		T.	T.	T.	. 10	T	. 36	. 60	1
enas Park	do		. 01	****		. 02						. 69			- 82		. 03	1. 47 !	2. 3(H)				2.041			ON	Lucy	221	3 78			41	į
nt City	Indian														. 25 T	1.30	1. 20	. 64	1. 41	85			. 34			15				.75		.80	
kwell	Withia-	****	****	****						. 05			. 04	. 20			. 05	. 73	1. 10		****			.36		. 10		. 32	. 03	. 10			
Andrew	coochee.														. 48		. 27			- 1												1. 13	1
Augustine	Withla-									. 10	1.50	. 20			. 10		. 20	. 25	. 20				- 10			. 62	. 47	. 68	. 81			. 90	1
Leo	Withla-				. 03				. 39						. 23	. 33		. 80	1. 22				. 60					. 90	. 39	. 02	T.	. 73	
suma Heights	st. Johas														. 04		T.	. 86	T.				T			. 28	. 22	. 16	. 83		.06	. 82	
tzerland	do											. 05	. 10		. 08		. 30	. 30							. 18			1, 23	. 08	.03		1 05	
	Ocklocknee . Coast	****	. 08		T			04			T.				. 63		T.	1.00					1. 25						. 25		783	. 60	
pon Springs	do		.08		. 13				. 28				T.		. 73			. 70	4. 16			. 19	. 71 3. 22			T.		. 66 T.	. 08		T.		
usville	Indian								200	****		***	. 64	. 02	. 01	. 20	T.	. 29	. 27							. 02	. 18	. 53	. 86	.06	. 05	. 66	
	Choctaw- hatchee.		****				-		T.	- 10	T.	. 10					T.	1.65				. 22										1. 52	1
Alabama.													1				-																
ga II	Chat'ho'chee	****								T.	1.62	1.20	1.38					. 80	. 62				. 18				T.	T.	T.			. 08	
niston	Coosado	****	****		****	****			.14	.03	. 20	1.50			****		1.00	1.49				T.					. 09	. 03		****		. 24	
burn	Tallapoosa									. 01	. 53	. 30	. 01					- 64					. 03			1						.02	1
nton muda	Alabama																. 05	****															
mingham	Bl'k Warrior							.22		. 354	- 77	11			1		2 250	2.37	1			400	1				783	T				.04	
era []np Hill	Coosa			1					111111111111111111111111111111111111111		1 30	15	no					75	- 1			- 1		- 1	. 1			783	00				
np Hilllar Bluff	Coosa	****				****		97	75		.10	1.00						. 49										.09	. 10			.60	
ronelle	Alabama									. 35	. 34	. 37				. 04	. 54	. 12							1								
pton []																																	
chrane	Tombigbee Bl'k Warrior do Tallapoota.:	****	****		****					70	. 65	. 01		2.00			****											. 15					
llman	TOTTE W MILIOT		****		****		****	04	20	. 70	. 0/	****		****			. 50	1. 50															80.00

TABLE 2.—Daily precipitation for Oct, ober 1911. District No. 2—Continued.

Challens	Water														1	Day	of m	onth									188					
Stations.	Watersheds.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
llabama-Contd.								100																1								
nhne	G. of Mexico		18		133			6	T.	T.	00	m	m			m	1.27	1				135	-		1	1-1						T
phne mopolis []	Tombigbee							****	1.	4.	.86	T.	T.			1.	1.26	. 40					****					.06				T.
faula II	Chat'ho'chee									. 24	. 34		. 02					.04			****		.90	****	****		. 02			T.	****	T.
ergreen	Escambia		1								.08	.06	. 15				****	.06		****	****	****	. 00	****	****	****	.00		1.00	1 4.		A.
omaton	do		1						. 42	. 51	. 48		T.				. 30					****		****	****							
rt Deposit	do										. 52	1. 25	. 15		1111			. 23		1								T.	T.	1		
dsden	Coosa										.04	.90			1000			1.24	. 22								. 10		2			
dwater	do									.06	. 26	.11	. 10					1.01	. 25									. 08				.4
ensboro	DICK AN SELLIOL										.78	. 28	. 33					. 65														
enville	Escambia										1.10							1.49														
milton	Tombigbee Escambia									T.	1.65						1.15	. 22											. 12			T.
hland Home	Escambia									.90	. 25	.25						. 48								. 01	. 33					T.
ingston	Tombigbee										. 37	. 37						1.14										. 07				
ple Grove	Coosa					****	****	. 64	T.	.20	1.00	·	••••			T.	. 35	.38			T						10	.10				. 16
ntone	do					****		. 04	.50						****	1.	T.			****	T.	****					. 19				****	.70
stead	Tallapoosa		****						.00	4. 22	.90	44	20	****			1.	2.98	. 44	****		****				****	****	T.				. 04
oile	G. of Mexico		****			****			T.	.16	.25	.06	.17			03	2.10	.12				****						. 10	1.05		T.	
ntgomery	Alabama							****	1.	.60	. 98	.17	. 44	****	****	. 00	. 12	. 62	****		****					****		.04	T.		4.0	. 38
wbern	Bl'k Warrior									.92		.04					.76	.02			****							T.	1	1	1	. 00
eonta	do								. 38	. 40	. 80	. 03	. 01					2. 16									.04					. 15
elika II	Tallapoosa G. of Mexico									T.	. 16	. 18						. 14	. 07				. 32					. 70	. 28			
ttville	G. of Mexico									. 60	. 20	.15					. 25	1.30				. 45										
ttville	Alabama									.28	1.22	. 42	. 03					. 97										. 19				. 33
hmataha	Tombigbee									T.	. 60					T.	1.17	.04														
na]ing Hill]	Alabama										1.18	. 28	. 10					. 69	. 03									. 20	.12			
ing Hill	G. of Mexico										. 64		.08					1.11										****			****	
adega	Coosa					****				.05			****				. 18	. 60										T.				. 30
lassee	Tallapoosa										. 23	1.21	. 54		****		T.	. 34									****	. 03	-44			T.
masvine	Tombigbee Escambia					****				.11	.95		.02	783			Т.	. 41	.05 T.		****			****				T.	01		****	****
caloosa	Bl'k Warrior	****			****	****	****		***	. 39		1.20	T.	1.	****		00	. 48 2. 83					. 91	****	****		.02		. 01		****	. 02
kegee	Tallapoosa			****					.11		. 36		1.		****		. 02	2. 00		****			T.	1. 26	****	****	****	T.		****	****	
ion Springs	do				****		****			****	.70	.19				****		. 40	. 35		****		2.40	1.40		****	****	. 22	. 13		****	****
iontown	Bl'k Warrior			****	****				****			.03			****	****	. 53	.16	. 00	****			2. 30	****			****	. 44	. 10		****	****
lev Head	Coosa						****	. 96			. 93	.00				****	1.96	1.77	****	****			****	****		****	. 20	T.			****	. 70
ley Headtumpka	do									T.	. 40	.94	. 40					1.11	. 22													
Mississippi.																			1										1			
erdeen	Tombigbee								T.		. 48	.18					. 23	. 36										T.	.27			
icultural College.	do								.10	. 10							. 50	. 20								3000		.16		1000		. 02
St. Louis	Coast				1				. 01	.15		. 32	.02			. 25	1.00	. 13														
xi	do										. 54	. 61	.13			T.	3.09															
neville	Tombigbee									. 49	.74						. 30	. 23														T.
okhaven	Pearl								. 50		. 04		1.92	T.				. 32				T.										
impia [do									. 35	. 09	. 07					. 05	.71											****			
ımbus	Tombigbee								. 20		. 25						T.	. 48					****					T.	. 15		****	
stal Springs	Pearl					****		m.			. 05	. 24	2.28	****				. 20			70		****								****	
nburg	Chie'sawhay							T.	.15		. 05	T.			****		. 23	. 05			T.	****					****		****		****	T.
	Tombigbee	00					****		****	. 40	. 92	.10		***			.78	. 39	****			****					****		.06	****	****	
ton []		. 00					****	****	****	T.	. 46		****	****	****		0	. 00	. 50					****		****		****	.00		****	****
ton	Leaf												1.03	.03			****	.20		****												T.
ton tiesburg	Leaf	1011							. 12		.18		-				.70	. 40														
ton tiesburg	Leaf Pearl						a married										.06	.20														
ton tiesburg tiesburg kory tson	Pearl Chic'sawhay							. 30		. 09	. 06		.07				-	.42	-													
ton tiesburg tiesburg kory tson	Leaf Pearl							. 30		. 09	. 06		.07					. 201														
ton tiesburg	Leaf Pearl Chic'sawhay Pearldo							. 30	т.		. 66 . 18 . 01	. 33					.74															
ton	Leaf							. 30	T. T.	T.	.06 .18 .01 .24	. 33	. 12				. 45	.06		T.	T.		T.				T.		T.			
ton	Leaf. Pearl. Chic'sawhay Pearl. do. Leaf. do. Chic'sawhay							. 30		T.	.66 .18 .01 .24 .09	. 33		.34	••••		. 43	.06		T.	T.		T.				Ť.		T.			
ton tiesburg lehurst kory son. e e Como rel. kesville sylle	Leaf Pearl Chic'sawhay Pearldo Leafdo Chic'sawhay Pearl							. 30	.47	T. .10	.06 .18 .01 .24 .09 .15	. 33 . 85 . 53	.12	.34			.43	.06		т.	T.		T.				T.		T.			
ton	Leaf							. 30	.47	T. .10	.06 .18 .01 .24 .09 .15 1.05	. 33 . 85 . 53	. 12 . 54	.34		.15	. 45 . 43 . 52 . 68	. 06 1. 86 . 08 . 03		T.	T.		T.				T.		т.			
ton tiesburg lehurst son e [e Como rel kesville isville	Leaf Pearl Chic'sawhay Pearldo Leaf do Chic'sawhay Pearl do Tombigbee								. 47 . 25 . 48	T. .10 .05 .57	.06 .18 .01 .24 .09 .15 1.05	. 33 . 85 . 53	. 12 . 54 1. 45 T.	.34		.15	. 45 . 43 . 52 . 68 . 04	.06		T.	T.		T.				T.	.20	Ť.			
ton tiesburg lehurst son e [e Como rel kesville isville	Leaf Pearl Chic'sawhay Pearldo Leaf do Chic'sawhay Pearl do Tombigbee							1. 20	.47 .25 .48 .23	T10 .05 .57	.06 .18 .01 .24 .09 .15 1.05 .17	.33 .85 .53	. 12 . 54	.34			.45 .43 .52 .68 .04	.06 1.86 .08 .03 .63		T.	T.	T.					Ť.		T.			
ton	Leaf. Pearl. Chic'sawhay Pearl. do Leaf. do. Chic'sawhay Pearl. do Tombigbee. Pearl. Chic'sawhay								. 47 . 25 . 48 . 23	T. .10 .05 .57	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67	.33 .85 .53 .77 .38 .01	. 12 . 54 1. 45 T.	.34		.15	.45 .43 .52 .68 .04 .90	.06 .86 .08 .03 .63		т.	T.	т.	T.				Ť.	. 20	т.			
rill	Leaf. Pearl. Chic'sawhay Pearldo. Leaf. do. Chic'sawhay Pearldo Tombigbee. Pearl. Chic'sawhay Pascagoula.							1. 20	.47 .25 .48 .23	T10 .05 .57	.06 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10	. 33 . 85 . 53 . 53 . 17 . 38 . 01	.12 .54 1.45 T. .10	.34			.45 .43 .52 .68 .04 .90 .75	. 06 l. 86 . 08 . 03 . 63 		T.	т.	т.					т.		T.			
ton tiesburg tiesburg tiesburg kory kson ties tie te Como. rel. kesville tisville ton moil rill titicello.	Leaf Pearl. Chic'sawhay Pearl. do Leaf do Chic'sawhay Pearl. do Tombigbee Pearl. Chic'sawhay Pearl.							1. 20	.47 .25 .48 .23	T10 .05 .57 T29 .60	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10	.33 .85 .53 .7 .38 .01	. 12 . 54 1. 45 T.	.34 T.			-45 -43 -52 -68 -04 -90 -75 -20 -45	. 06 l. 86 . 08 . 03 . 63 		т.	т.	T.					Ť.		T.			
ton	Leaf. Pearl. Chic'sawhay Pearldodo. Leafdo. Chic'sawhay Pearldo. Tombigbee. Pearl. Chic'sawhay Pearl. Tombigbee. Pearl. Tombigbee. Pearl. Tombigbee.							1.20	.47 .25 .48 .23 T.	T10 .05 .57 T29	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67	. 33 . 85 . 53 . 53 . 17 . 38 . 01	. 12 . 54 1. 45 T. . 10 2. 20 1. 65	.34 T.			.45 .43 .52 .68 .04 .90 .75 .20 .45	. 06 l. 86 . 08 . 03 . 63 		т.	Ť.	т.					T.		T.			
ton tiesburg dehurst kory kson e tree Como rel kesville isville ton idian rill aticello lolona cagoula	Leaf Pearl Chic'sawhay Pearl do Leaf do Chic'sawhay Pearl do Tombigbee Pearl Pearl. Tombigbee Pearl. Tombigbee Coast.							1.20	.47 .25 .48 .23	T10 .05 .57 T29	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67 .45 2.25	.33 .85 .53 .77 .38 .01	. 12 . 54 1. 45 T. . 10 2. 20 1. 65	.34 T.			.45 .43 .52 .68 .04 .90 .75 .20 .45 .42 2.45	. 06 l. 86 . 08 . 03 . 63 		т.	т.	т.					T.		T.			
ton	Leaf. Pearl. Chic'sawhay Pearl. do. Leaf. do. Chic'sawhay Pearl. do. Tombigbee. Pearl. Tombigbee. Pearl. Tombigbee. Coast. Pearl.							1.20	.47 .25 .48 .23 T.	T10 .05 .57 T29	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67 .45 2.25 1.85	.33 .85 .53 .77 .38 .01 .18 .27	. 12 . 54 1. 45 T. . 10 2. 20 1. 65	.34 T.		. 53	. 45 . 43 . 52 . 68 . 04 . 90 . 75 . 20 . 45 . 42 2. 45 . 46	. 06 1. 86 . 08 . 03 . 63 		т.	т.	т.					т.		т.			
ton tiesburg teleburst kory kson teleburst kes ville tisville tisville toleburst tolebur	Leaf Pearl. Chic'sawhay Pearl. do Leaf do Chic'sawhay Pearl. do Tombigbee. Pearl Pascagoula Pearl. Pearl. Tombigbee. Coast. Tombigbee.							1.20	.47 .25 .48 .23 T.	T10 .05 .57 T29 .60 T. T.	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67 .45 2.25 1.85	.33 .85 .53 .7 .38 .01 .18 .27	. 12 . 54 1. 45 T 10 2. 20 1. 65 . 47 . 19	.34 T.			.45 .43 .52 .68 .04 .90 .75 .20 .45 .42 .2.45 .46 .83	. 06 1. 86 . 08 . 03 . 63 		т.	т.	т.					т.		т.			
ton	Leaf. Pearl. Chic'sawhay Pearl. do. Leaf. do. Chic'sawhay Pearl. do. Chic'sawhay Pearl. Chic'sawhay Pearl. Chic'sawhay Pascagoula. Pearl. Tombigbee. Coast. Pearl. Tombigbee. Chic'sawhay							1.20	.47 .25 .48 .23 T.	T10 .05 .57 T29 .60 T. T15	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67 .45 2.25 1.85 .75 .32	.33 .85 .53 .77 .38 .01 .18 .27	. 12 . 54 1. 45 T 10 2. 20 1. 65 . 47 . 19	.34 T.		. 53	.45 .43 .52 .68 .04 .90 .75 .20 .45 .42 2.45 .46 .83 .18	. 06 1. 86 . 08 . 03 . 63 . 20 1. 08 . 03 . 60 . 91 . 59 . 76 . 64		т.	т.	т.					т.		T.		· · · · · · · · · · · · · · · · · · ·	
ton	Leaf Pearl. Chic'sawhay Pearl. do Leaf do Chic'sawhay Pearl. do Tombigbee. Pearl Pascagoula Pearl. Pearl. Tombigbee. Coast. Tombigbee.							1.20	.47 .25 .48 .23 T.	T10 .05 .57 T29 .60 T. T.	.66 .18 .01 .24 .09 .15 1.05 .17 .22 .67 .10 .67 .45 2.25 1.85	.33 .85 .53 .7 .38 .01 .18 .27	. 12 . 54 1. 45 T 10 2. 20 1. 65 . 47 . 19	.34 T.		. 53	.45 .43 .52 .68 .04 .90 .75 .20 .45 .42 .2.45 .46 .83	. 06 1. 86 . 08 . 03 . 63 		T.	т.	т.					т.		T.		T.	

<sup>Precipitation included in that of the next measurement.
Separate dates of falls not recorded.
Precipitation for the 24 hours ending on the morning when it is measured.
Precipitation is less than 0.01 inch rain or melted snow.</sup>

Table 3.—Maximum and minimum temperatures at selected stations, October, 1911. District No. 2, South Atlantic and East Gulf States.

			Virg	inia.							,				No	rth Car	olina								-	Carol	
Lynch	burg.	Nort	lolk.	Richn	nond.	Saz	ce.	Char	lotte.	Eder	nton.			Hatte	eras.			Rale	igh.	Reids	ville.	Salish	oury.			Charle	ston.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
68 80 56 80 75	54 56 54 55 54	74 82 67 82 74	57 62 60 60 60	74 82 64 85 72	51 57 56 59 50	75 84 75 82 78	57 72 60 59 62	75 89 75 79 83	64 68 60 59 63	73 73 61 80 76	50 56 50 58 51	81 91 80 83 86	57 67 63 62 64	77 85 74 82 79	64 69 67 67 63	83 93 73 83 84	56 64 61 58 61	79 85 67 81 78	57 65 59 62 59	73 82 78 80 78	57 69 54 56 56	76 88 85 80 83	61 69 53 54 57	81 91 78 84 84	62 75 66 62 64	80 91 82 82 90	70 77 72 70 75
69 87 55 66 60	47 49 48 53 59	72 89 62 65 67	56 56 56 57 60	71 82 64 65 65	47 48 49 55 53	74 92 62 63 61	49 62 55 54 53	79 91 65 62 69	55 65 51 51 60	70 88 68	50 60 53	80 93 70 69 74	54 67 54 58 62	72 83 69 70 72	60 66 64 63 66	79 92 67 73 79	50 52 55 52 52 55	75 92 59 66 69	51 53 50 55 61	75 93 57 65 63	48 55 47 50 58	79 94 81 64 66	50 65 51 50 51	74 91 70 77 74	58 69 57 57 63	82 93 80 79 78	72 77 66 65 71
78 70 69 69 77	59 56 45 47 53	69 68 63 66 76	60 59 55 50 56	75 69 68 68 68 76	58 53 47 45 48	65 68 68 76 79	55 52 56 48 54	76 73 70 70 82	64 57 51 55 56	73 69 69 67 69	51 53 50 43 54	70 76 75 74 86	63 60 50 48 54	80 70 67 68 76	67 62 59 55 65	79 74 75 77 79	58 60 50 47 51	70 71 70 70 82	61 57 51 50 55	82 72 75 72 82	59 59 46 48 51	81 76 73 75 85	62 59 46 51 50	80 75 72 71 82	65 59 53 56 56	82 81 73 77 81	70 67 61 63 64
70 66 71 75 70	55 55 54 50 49	65 73 69 68 66	57 56 61 57 62	69 73 73 66	50 47 58 51 60	74 71 78 76 70	61 59 60 50 68	82 71 72 73 73	63 61 56 49 52	80 85 70 72 71	57 68 60 52 53	81 80 74 78 70	61 60 60 52 51	72 78 72 72 72 68	64 64 64 60 64	74 81 69 74 70	56 55 57 49 49	70 74 75 73 67	58 59 59 52 54	72 67 75 76 70	55 60 52 46 50	84 71 76 76 76 73	49 62 53 45 49	82 78 74 74 73	64 61 63 56 54	83 80 75 77 77	68 72 65 61 63
72 63 64 62 63	59 57 46 41 35	64 77 69 60 65	60 61 56 53 53	66 72 62 61 65	58 60 46 44 41	71 69 67 63 66	62 58 57 43 40	73 66 64 62 63	57 59 51 46 41	68 78 71 58 69	61 58 58 47 45	75 72 70 66 70	61 54 52 45 43	72 74 72 65 68	61 60 60 59 60	79 82 69 68 73	55 54 62 46 45	73 71 64 63 66	56 56 51 45 43	75 65 67 66 67	58 56 46 40 38	75 74 65 66 67	55 56 49 41 38	76 78 72 68 71	62 61 57 50 50	77 81 72 70 70	65 70 61 57 56
69 73 55 65 63 67	35 42 47 44 42 46	63 72 58 60 62 66	55 48 49 51 49 55	68 72 53 62 61 65	43 42 41 40 43 46	75 69 66 65 65 65	46 48 42 46 42 51	69 60 55 66 73 64	45 53 47 46 51 55	68 68 65 61 66 69	49 47 52 51 44 52	77 73 57 69 75 70	47 49 50 47 46 52	68 68 63 65 67 68	61 60 58 58 58 61	74 77 64 69 71 74	50 44 48 46 44 46	68 70 57 65 70 66	44 51 47 47 48 52	73 72 58 67 74 65	39 47 47 38 45 48	72 64 63 62 74 65	37 47 44 41 45 51	74 72 61 68 71 73	54 50 54 52 50 54	75 74 65 70 70 68	60 62 56 54 55 61
68.6	49.9	68.8	56.4	68. 6	49.9	71.3	54.4	71.7	55.2	70. 9b	52.9h	75.6	55.3	72.1	62.2	76.0	52.8	71.2	53.8	72.1	50.9	74.6	51.3	75.8	58.5	77.8	65.4
					S	outh C	arolina	h.					,							Geor	gia.					13	7
Colur	mbia.	Conv	vay.§§	Fergu	son.§§					New	berry.	Soci Hi	lety	Alba	ny.§§	Atla	nta.	Aug	usta.			Ma	con.	Ron	ne.§§	Sava	nnah.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max.	Min.	Max.	Min.	Max.	Min.
76 91 78 82 87	66 68 68 66 67	85 94 76 88 91	65 71 70 65 72	78 76 74 84 88	70 66 68 65 71	85 90 75 87 87	73 72 69 62 59	88 91 75 86 88	61 64 68 61 58	80 92 84 84 88	68 69 68 63 68	79 89 75 82 82	67 65 64 64 56	95 95 98 96 97	73 68 69 74 69	89 88 94 86 88	69 68 68 66 67	84 92 81 84 92	69 69 71 69 71	82 85 85 84 88	67 64 67 63 62	93 91 95 89 94	74 70 70 73 71	96 96 99 95 94	66 65 67 69 65	87 91 90 86 93	72 71 72 69 73
83 92 78 74 77	58 70 56 57 62	84 95 69 73 80	59 61 61 61 61	86 94 63 77 79	57 58 61 56 62	85 93 73 75 77	59 73 60 60 65	81 92 65 73 65	54 55 55 53 55	84 94 89 68 74	56 71 57 54 61	80 89 64 68 75	61 55 56 62 64	97 98 98 85 90	68 70 71 69 69	89 89 79 64 70	64 70 58 55 63	87 93 80 80 80	66 71 61 60 67	81 88 80 66 66	61 62 56 63	92 93 83 71 81	71 68 63 60 67	95 95 85 68 71	58 58 68 59 60	85 92 80 80 78	76 74 66 64 70
80 78 73 76 83	69 60 53 56 56	85 82 79 78 86	53 54	81 80 74 81 80	66 69 52 53 55	82 70 65 75 82	65 59 55 57 56	80 80 78 76 85	62 57 47 48 53	78 78 73 75 84	68 63 51 54 56	70	62 52 51 52 62	85 87 84 87 89	72 71 62 64 65	76 76 72 75 83	65 60 56 58 62	81 82 75 76 84	61	70	49 52	75 77	69 63 58 62 62	81 80 78 83 85	66 60 50 51 58	82 82 75 76 84	69 66 58 63 63
85 74 75 77 77	63 54 60 52 54	81	65 52	76 78	58 61 64 54 53	86 86 76 79 81	62 65 65 57 54	70 77 77	60 52 48	74	61 50	72 73 73	64 60 52 51 58	90 75 74 81 82	68 55 54	81 69 70 72 74	64 54 51 53 58	75 76	64 59 56	72 69 71	60 52 49	73 73 76	55	86 69 74 74 76	64 65 50 46 47	83 78 74 79 79	68 72 64 59 63
78 68 69 66 68	59 64 53 48 46	79 75	58 65 51	81 70 68	58 62 58 50 48		61 61 62 52 52	73 70	43	70 69 67	51 45	73 67 65		68	65 44 46	63	39 45	69 68	59 47 51	70 63 66	38 39	76 68 68	43	68	38 38	78 80 72 68 66	53
73 62 60 64 72 68	54 52 52 51 47 56	59 74 77	53 58 53 49	65 61 59 72	52 56 54 52 50 48	74 76 69 68 70 71	58 59 52 52 53 57	60 67 74	50 49 49	58 65 72	52 52 48 48	66 55 60 68	50 52 47 45 58 54	79 76 74 71 78 68	61 59 57 54	68 70	46 52	63	53 53 51 49	66 63 66 70	53 51 47	65 62 65 73	56 55 53 52	72	53 50	74 75 64 71 72 66	59 60 56 54 53 61
Companies and an advantage of the companies of the compan	Max. 688 80 75 69 69 77 70 66 71 77 70 63 64 62 63 69 73 555 63 69 73 555 63 69 73 76 68 68 68 68 77 77 77 80 80 80 66 68 73 66 68 73 66 68 68	68 54 80 56 56 56 56 56 56 56 56 56 56 56 56 56	Max. Min. Max. 68 54 74 80 56 82 56 54 67 80 55 82 75 54 67 80 47 72 87 49 89 55 48 62 66 53 65 60 59 67 78 59 67 78 59 69 70 56 68 69 47 66 77 53 76 70 55 73 71 54 69 75 50 68 70 49 66 72 59 64 63 57 77 64 46 69 62 41 60 63 35 63 77 46 68 68 69 47 77 64 46 69 62 41 60 63 42 62 65 47 88 66 88 68 69 88 88 Columbia. Conv Max. Min. Max. Columbia. Conv Max. Min. Max. Min. Max. Max. Min. Max. 66 68 88 87 67 91 88 88 88 94 78 68 88 87 67 88 88 88 84 92 70 95 78 78 78 78 68 88 88 84 92 70 95 78 86 88 87 67 91 88 88 88 89 78 66 88 87 67 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 68 88 88 77 78 88 69 88 78 88 88 88 77 78 88 88 88 77 78 88 88 88 77 78 88 88 88 77 78 88 88 78 89 79 78 89 7	Max. Min. Max. Min. 68 54 74 57 80 56 56 67 60 55 82 60 75 84 74 60 66 55 48 62 56 66 55 48 62 56 66 55 48 62 56 66 55 67 60 59 67 60 56 68 59 67 60 69 47 66 55 77 53 66 55 77 66 55 77 66 55 77 66 55 77 66 55 77 66 55 67 70 49 66 62 72 59 64 60 63 57 70 49 66 62 72 59 64 60 63 57 70 49 66 62 72 59 64 60 63 57 70 49 66 62 41 60 53 63 35 69 35 69 35 69 35 69 35 69 35 69 35 69 35 69 61 75 66 65 67 68 69 67 46 69 67 77 78 68 68 64 84 84 89 99 53 79 53 79 53 79 53 69 69 61 74 57 73 61 77 52 89 61 77 52 89 61 77 52 89 61 77 52 89 61 77 52 89 61 64 64 77 52 78 59 68 46 77 52 77 53 60 60 61 77 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 60 61 61 77 75 52 77 53 60 61 61 77 75 52 77 53 60 61 61 77 75 52 77 53 60 61 61 77 75 52 77 53 60 61 61 77 75 52 77 53 60 61 61 77 75 52 77 75 53 60 61 61 77 75 52 77 75 53 60 77 75 52 77 75 53 60 77 75 52 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53 60 77 75 53	Max. Min. Max. Min. Max. 68 54 74 57 74 80 56 82 62 82 62 82 65 65 67 60 65 75 82 60 85 75 84 74 60 72 66 85 66 83 65 57 76 65 66 85 67 66 85 67 67 67 67 67 67 67 68 68 69 47 66 62 66 63 57 76 66 65 77 67 67 67 67 67 67 67 67 67 67 67 67	Max. Min. Max. Min. Max. Min. 68 54 74 57 74 51 80 56 82 62 82 82 55 56 54 67 00 64 56 80 555 82 00 85 59 75 54 74 00 72 50 69 47 72 56 71 45 66 53 65 57 65 53 68 59 69 60 65 53 69 45 63 55 68 47 69 47 66 50 68 45 77 53 76 56 76 48 70 55 68 59 69 53 76 66 55 73 65 68 47 77 53 76 56 76 48 70 55 68 59 69 69 60 72 59 67 60 65 55 78 69 47 66 50 68 45 77 55 68 57 76 56 68 59 69 60 75 58 68 46 77 61 73 58 69 46 60 62 66 60 72 59 64 60 61 73 58 75 50 68 57 73 51 70 49 66 62 66 60 72 59 64 60 65 62 46 62 41 60 53 61 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 35 65 53 65 44 63 42 72 48 72 42 55 47 68 68 69 53 41 68 68 64 69 66 62 66 68 68 69 67 67 67 68 68 70 74 68 68 76 70 74 68 87 67 91 72 88 71 83 58 84 59 86 57 77 62 80 61 77 62 80 69 85 66 81 77 52 80 61 77 52 80 69 85 66 81 77 53 56 69 61 77 54 86 87 70 74 68 87 77 55 88 66 77 77 66 66 77 78 68 77 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 61 77 62 80 62 78 77 52 88 81 54 80 78 78 54 79 78 54 81 52 78 78 54 79 78 54 81 54 80 78 55 66 67 78 55 68 65 70 78 55 68 65 70 78 55 68 65 78 79 55 66 74 55 78 79 55 66 74 55 78 79 55 66 75 78 55 66 75 75 78 55 66 75 75 78 55 66 75 75 78 55 66 75 75 78 55 66 75 75 78 66 77 75 75 61 77 62 80 61 77 62 80 61 77 62 80 65 70 75 65 68 64 64 84 58 81 52 78 55 66 66 76 75 55 68 66 76 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 68 66 77 55 68 6	Max. Min. Max. Min. Max. Min. Max. 68	Max. Min. Max. Min. Max. Min. Max. Min. 68 54 74 57 74 51 75 75 65 55 63 64 67 60 64 56 75 60 80 55 82 60 85 59 82 57 78 62 60 85 59 82 50 78 62 60 84 56 75 60 80 55 84 67 60 75 54 74 60 72 50 78 62 60 84 56 75 60 80 55 84 77 60 75 54 74 60 72 50 78 62 66 83 65 55 63 55 63 55 66 82 48 92 65 65 64 49 62 55 66 64 33 65 57 65 55 63 54 60 59 67 00 65 53 61 53 78 59 69 69 69 53 68 52 60 47 66 63 55 68 47 68 56 69 47 66 63 55 68 47 68 56 69 47 66 63 55 68 47 68 56 69 47 66 63 55 68 47 78 53 76 56 69 47 71 54 69 61 73 55 78 60 74 61 60 60 55 77 61 55 60 68 87 73 55 78 60 70 49 66 62 66 60 70 68 75 50 68 47 71 54 69 61 73 55 78 60 70 49 66 62 66 60 70 68 70 68 70 46 60 60 70 68 70 68 70 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 68 70 60 60 60 70 60 60 70 60 60 70 60 70 60 70 60 70 60 70 60 70 60 70 60 70 60 70 60 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 60 70 70 70 70 70 70 70 70 70 70 70 70 70	Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Columbia. Conway.\$\frac{8}{8}\$ Ferguson.\$\frac{8}{8}\$ 66 62 65 76 79 178 62 68 68 69 69 69 69 69 69 69 69 69 69 69 69 69	Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Min. Max. Min. Min. Min. Min. Min. Min. Min. Min	Max Min. Max Min. Max. Min. Max Min. Ma	Max. Min. Max. M		Max. Min. Max. Min.	Max. Min. Max. M	Max. Min. Max.	Max Min Max	Max Min. Max	Max. Min. Min. Max. Min. Max.	Max. Min. Max. M	Max. Min. Max. M	Max. Min. Max. Min.	Max. Min. Max. M	Max. Min. Min. Min. Min. Min. Min. Min. Min	Max. Min. Min. Min. Min. Min. Min. Min. Min	Max. Min. Min. Min. Min. Min. Min. Min. Min	Max. Min. Max. M

TABLE 3.—Maximum and minimum temperatures at selected stations, October, 1911. District No. 2—Continued.

	100		Geo	rgia.			BUS.		-	740.0							Florid	a.										
Date.		mas-		ay- is.§§		est nt.§§	Av		Fo		Gai ville		Jack vil		Ke We		Mia	ımi.	Ora Cit		Orla	ndo.	Pen		Tal		Тап	pa.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
1 2 3 4 5	94 93 95 95 97	72 69 71 70 70	97 94 98 95 99	72 72 69 74 72	96 91 96 92 93	69 68 68 72 67	92 90 93 92 94	67 67 68 68 71	89 87 88 89 89	71 71 72 71 71	96 95 95 96 91	70 70 69 70 70	92 91 94 90 94	76 74 72 77 75	87 87 88 87 87	72 78 79 79 76	87 87 87 86 86	79 79 78 71 72	94 96 96 95 95	68 70 69 67	94 94 94 95 93	66 69 71 70 70	87 87 87 87 87 88	77 77 78 75 74	88 91 91 92 93	78 70 71 72 72	89 88 91 92 92	70 72 75 75 73
6 7 8 9	96 94 95 88 91	70 72 70 73 73	97 97 97 88 90	70 72 71 68 68	93 94 94 73 81	66 69 67 63 64	93 92 92 93 94	69 68 66 70 68	80 89 89 88 88	73 72 71 71 69	95 93 95 93 93	70 72 70 69 69	85 93 95 88 87	75 75 74 76 74	88 88 89 88 88	77 79 79 78 76	87 86 85 88 88	81 73 71 77 80	95 95 88 88 89	66 65 72 68 65	93 94 94 93 91	63 68 72 70 65	88 87 88 84 84	74 78 75 73 70	90 91 91 88 87	74 73 72 73 74	92 90 92 90 90	78 74 74 78 70
1 2 3 4 5	92 90 85 81 88	71 65 61 62 59	91 89 84 79 88	71 72 61 61 62	78 81 76 81 85	63 66 54 58 62	91 90 93 85 90	70 69 72 70 70	90 88 88 82 84	70 70 74 72 72	92 92 88 83 86	69 70 65 64 65	88 86 82 84 85	74 72 69 69 66	87 88 87 87 87 88	74 76 74 78 79	86 87 85 87 90	73 73 70 73 74	88 92 85 82 86	66 65 64 61 68	93 91 90 84 89	68 66 68 66 71	84 82 83 82 81	74 72 69 69 75	86 87 83 78 83	71 71 64 65 63	91 88 88 79 88	7: 7: 7: 6: 7:
6 7 8 9	87 75 77 80 82	69 66 55 52 54	90 76 81 83 85	64 69 62 53 57	86 72 72 73 80	66 69 51 49 52	93. 87 86 88 89	71 70 70 69 67	86 86 82 80 82	72 73 71 73 71	91 74 78 81 84	70 61 64 55 55	85 79 79 81 80	73 70 65 59 63	89 87 86 85 86	79 81 81 74 80	88 88 84 88 87	75 79 77 72 71	86 82 83 84 87	67 70 70 56 55	88 81 84 83 88	68 71 71 63 59	81 77 74 75 78	68 63 58 60 61	83 75 73 77 78	69 70 59 56 59	88 81 82 81 85	7. 6 6 6
1 2 3 4 5	80 82 71 74 65	62 58 48 50 57	85 80 75 75 64	64 74 53 51 51	80 68 67 69 68	57 64 39 40 43	92 91 84 86 88	69 70 67 66 66	84 86 84 84 84	73 72 73 70 69	85 80 80 81 78	55 69 69 54 61	82 81 78 77 71	70 70 59 58 60	89 87 89 86 85	78 79 76 74 78	86 87 87 84 84	78 73 73 73 73 73	90 91 84 78 81	67 65 66 55 67	87 88 81 85 87	66 69 68 62 68	76 72 69 73 74	66 51 46 54 57	79 80 68 72 69	63 66 48 53 52	87 83 79 83 86	77 77 66 66
6 8 9 1	77 81 71 67 79 70	62 63 60 57 55 62	75 85 65 73 75 67	58 64 60 52 55 58	72 59 65 69 73 65	50 55 57 53 52 53	88 90 91 81 81 85	73 72 71 71 70 71	86 87 85 82 83 82	74 73 73 73 73 74 74	86 90 75 75 82 76	65 71 70 62 62 62 66	79 82 71 67 75 75	68 71 62 60 61 62	85 86 84 84 85 85	74 78 72 74 72 76	84 86 86 85 87 86	78 73 76 74 74 75	82 83 86 86 82 84	67 71 70 68 64 71	87 88 84 80 82 84	71 72 71 68 67 71	71 77 70 66 73 80	60 65 62 61 62 65	72 81 71 69 76 76	58 63 63 59 56 60	87 88 87 77 81 77	70 71 71 60 60 71
fns	83.6	63. 2	84.4	63.9	78.8	58.9	89.5	69.2	85.5	71.9	86.4	65.8	83.1	68.7	86.8	76.8	86.4	74.8	87.5	66.0	88.4	68.0	79.5	66.7	81.2	64.8	86.2	70.

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Date.	Ann	iston.	Bern	ouda.		ning-	Eufa	ula.§§	Mo	bile.		ont- nery.		sca- a.55		ion- wn.		um- s.§§		ties- g.§§	Jack	cson.	Meri	dian.
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Means	78.3	56.9	80.9	58. 0s	77.7	58.3	78. 4	58.1	80.4	64.8	80.1	61.5	80.7	56.7	82.2	54.5	81.1	58.7	83.7	57.5	82.6	56.6	78.5	57.2

*, b, *, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

5 Data are from standard instruments not supplied by the U.S. Weather Bureau.

\$\$ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 3, OHIO VALLEY AND TENNESSEE.

Prof. FERDINAND J. WALZ, District Editor.

GENERAL SUMMARY.

Unseasonably warm weather, which had prevailed so largely during the whole of September in the Ohio Valley, continued with only one or two brief interruptions until about the 21st of October, when there came a marked change to colder, and freezing temperatures with heavy frosts ruled the rest of the month. The month as a whole was warm and unseasonably wet, there being a large excess of rainfall over the greater portion of the district, much cloudiness, many rainy days, and a general lack of sunshine usual in this month. Midsummerlike conditions prevailed during the first week, especially over the southern half of the district, and again for a day or two in the middle of the month, and vegetation was green until after the occurrence of the first killing frost. General frost sufficiently heavy to cause much damage was some 8 or 10 days later this fall in its coming than usual, and immense good resulted from this extension of the growing season, allowing all outstanding crops to become fully matured. A second crop of raspberries was gathered at a place near Danville, Ill., and in Douglas County, in the same State, an experimental field of oats, planted July 26, was cut on the 26th of October, yielding about 30 bushels to the acre. The superabundance of rain, which in some sections was the greatest on record for a fall month, while greatly hindering all outdoor work, especially fall seeding, considerable wheatland being left unseeded, and corn in shock reported molding, was not entirely without its benefit, as it was extremely favorable for pastures and early sown grain. There were floods and freshets in many of the smaller streams and in some of the larger tributaries of the Ohio River the first part of the month, which caused a considerable amount of damage to growing crops in the valleys of the creeks and rivers, besides destruction to other property.

During the first week three well-defined barometric depressions of considerable intensity and attended by rain, thunderstorms, and some wind squalls, and the high temperature before mentioned, passed over or near the district. Also in the period 15th-17th an extensive barometric disturbance moved across the Central States, attended by heavy rains over much of the Ohio Valley. High-pressure areas largely dominated the second week of the month and from the 18th to the 30th, inclusive.

TEMPERATURE.

The temperature for the month averaged above normal for the district as a whole and for each of the States or portions of States comprising it. For the States north of the Ohio River and for western Pennsylvania the temperature was close to normal, the departure being less than $+1^{\circ}$. From the Ohio River southward the average

temperature departure increased from about $+2^{\circ}$ in northern Kentucky to $+5^{\circ}$ in western North Carolina. It was above normal at practically all stations in Kentucky, Tennessee, West Virginia, and the sections of the States forming the southern border and including southwestern Virginia, the excess at the numerous stations ranging from 1° to 7°, the latter amount occurring in extreme eastern Tennessee and extreme southwestern North Carolina. At a few stations in eastern Ohio the departure ranged from $+2^{\circ}$ to $+4^{\circ}$, also it was $+2^{\circ}$ to $+3^{\circ}$ at a few stations in southwestern Indiana, but nearly normal conditions obtained at the other stations in those two States. The most extensive area with deficient average temperature was the upper Wabash Basin in Illinois and Indiana, but at no station in the entire district

was there a deficiency greater than -2°.

Except for three or four days at most the temperature was above normal during the whole of the first and second decades of the month. On several days during the first week remarkably high temperatures for the season were recorded in most of the States of the Ohio Valley. Maximum temperatures of 90° and over were of common occurrence in Kentucky, Tennessee, and northern Alama, and at one place, Decatur, Ala., it reached 100° on the 4th. During the same time the 4th. During the same time maximum temperatures of 80° to 90° were registered in West Virginia, western North Carolina, and southwestern Virginia. Over the rest of the district, however, that is, western New York, western Pennsylvania, and western Maryland, the temperature did not reach 80° at any time during the month except at one station, viz, Brookville, Pa., where it was 81° on the 9th. The breaks in the warm weather during the first 20 days of the month occurred as follows: On the 2d and 3d the temperature was from 6° to 7° below normal in the extreme northeastern portion of the district; on the 5th it was from 2° to 8° below normal over the entire northern portion of the district, and on the 8th it was from 4° to 10° below normal in practically all parts of the district except in the southeastern section. Over this section, embracing eastern Tennessee, western North Carolina, and southwestern Virginia, the temperature was above normal during practically the entire time of the first and second decades. Temperatures were again unseasonably high on the 15th and 16th, the daily average ranging from 5° to 12° above normal and maximum temperatures registering between 72° to 88°. A decided change to colder occurred about the 21st and during the remainder of the month the temperature was almost continuously below normal. On the 23d and 24th killing frosts were more or less general over the entire Ohio Valley, and during the last decade freezing temperatures occurred in every section of the district. The lowest temperature of the month, 18°, was reached at Brookville, Pa., on the 30th. Little or no damage was done by the killing frosts as at the time of its appearance practically all crops had either been gathered or were fully matured. Over much of the district killing frosts were from one to two weeks later than usual, thus extending the growing season to that extent, which was very beneficial. Killing frost occurred at one station in Pennsylvania as early as the 4th and at several stations in that State and in Ohio on the 8th and light frosts at quite a few stations in various parts of the district on scattered dates during the first and second decades. As a rule, however, the killing frosts of the period 23d to 25th were the first frosts of the season. Large flocks of wild geese were flying southward at the end of the month.

PRECIPITATION.

Precipitation was unusually large in amount and frequent in occurrence for October in nearly all parts of the Ohio Valley. Over considerable of the district, particularly the eastern half and in southeastern Indiana, it averaged nearly double the normal amount for the month, while at many stations in this area considerably more than double the usual amount was received, and at some stations the amounts were the largest of any October of local record. About the only part of the district where precipitation was deficient over any extensive area was in the lower Ohio Valley proper; that is, in southern Illinois and western Kentucky. In this area the amount was generally less than 2 inches, and at a few stations less than 1 inch. The greatest monthly pre-cipitation, ranging from 5 to 9 inches, occurred over a large area extending from southeastern Indiana southeastward over eastern Kentucky, southern West Virginia and into southwestern Virginia; over a smaller, although considerable area, comprising the Allegheny River watershed in western Pennsylvania and the Mahoning River watershed in northeastern Ohio; over considerable of central Ohio; and over a relatively small area in east-central Tennessee. Over the remainder of the district the monthly rainfall ranged between 2.5 and 5 inches.

The distribution of precipitation through the month was in five general periods: 1st-4th, 7th-11th, 15th-18th, 22d-23d. and 30th-31st. During the first three of these periods there were some very heavy rains over large areas of the district, but during the last two, while there were moderately heavy rains in some localities, the precipitation as a rule was light. Snow flurries occurred in several of the northern States of the district on one or two days. The first snow of the season occurred on the 21st in the

Wabash Valley of Illinois.

Heavy rains at the beginning of the month, following so closely the unusually large rainfall of September, caused damaging floods in some of the upper tributaries of the Ohio River and in many of the smaller streams of the central and eastern portions of the watershed. Floods in the Allegheny and Mahoning River basins caused a property loss in western Pennsylvania and northeastern Ohio of nearly a million and a half dollars, besides several lives. The damage was especially large in the Beaver River section of western Pennsylvania. Timely flood warnings were widely distributed by the local office of the Weather Bureau at Pittsburgh, Pa., and resulted in the saving of considerable property which would otherwise have been lost. There was also a great deal of damage by floods during this same period in the rivers and small streams in portions of Illinois and Indiana, and in eastern Kentucky, the damage being especially great in the Licking and upper Kentucky River basins of Kentucky,

and over the East Fork of White River and the extreme southeastern counties of Indiana. Besides general property loss in these sections, growing crops suffered much

MISCELLANEOUS.

Thunderstorms attended by severe wind squalls caused considerable damage in various localities in the district on the 3d, the wind reaching a velocity of 50 miles per hour at Pittsburgh, Pa. Several large tobacco and stock barns were destroyed and stock killed in the north-central counties of Kentucky. On the 6th and 7th, considerable damage resulted from thunderstorms, wind squalls, and heavy rains in the central counties of Ohio. In the period 14th to 15th, sections of Illinois, Indiana, and Kentucky were visited by local thunderstorms attended by destructive lightning, wind squalls, and hail. Numerous barns were destroyed and considerable stock was killed in those The most destructive storm of the month crossed central Indiana on the 14th, of which the section director at Indianapolis furnishes the following detailed account:

SEVERE WINDSTORM CROSSES THE STATE OF INDIANA.

[By VERNE H. CHURCH, Section Director.]

One of the most destructive windstorms of many years in Indiana crossed that State during the late afternoon of October 14, 1911. It made its first appearance in the vicinity of Veedersburg, Fountain County, then traveled eastward to Hillsboro, Waynetown, Crawfordsville, thence southeastward to Danville, and nearly east from there to Indianapolis. The Jast damage of consequence occurred at Ben Davis, a small village 4 miles west of the western limits of the city of Indianapolis. The wind at Indianapolis was not of unusual velocity, and no damage occurred there or at points to the eastward, although a marked disturbance in the atmospheric pressure took place at Richand no damage occurred there or at points to the eastward, although a marked disturbance in the atmospheric pressure took place at Richmond, as registered by the barograph of Prof. B. W. Kelly, of the high school in that city. Large fluctuations in barometer occurred also at Indianapolis and at La Fayette. The record at La Fayette was furnished by William J. Jones, jr., of Purdue University. The storm traveled an approximate distance of 140 miles at an average rate of 45 or 50 miles an hour, judging from the barograph records.

The miraculous feature of the storm was the fact that, although many buildings were completely demolished, no persons were killed at any of the places visited, and but few injured, and these not seriously. The estimated property loss from the storm is \$80.000. divided

The estimated property loss from the storm is \$80,000, divided as follows: Veedersburg, \$5,000; Hillsboro, \$25,000; Danville, \$500; Ben Davis, \$40,000; scattered points in rural districts of region trav-

At Veedersburg the storm approached from the northwest, and was said to have been accompanied by a funnel-shaped cloud. The trees and poles blown down fell toward the southeast over the entire

path of destruction, which was but 50 feet in width.

At Hillsboro the damage to property ranged over a territory 1 mile in width. The storm approached from the southwest, and a cloud of funnel shape was observed about 4.05 p. m. Trees on the north side of the path fell toward the north; on the south side, toward the east; and in the center, nearly east.

The damage at Danville was not extensive. The path covered was about 50 yards in width, and the funnel-shaped cloud was observed. The trees on the north side of the path fell toward the south; on the south side, toward the north; and in the center, toward the east. This plainly indicates that a rotary motion took place at this point.

The greatest damage occurred at Ben Davis, which the storm reached about 5.30 p. m. The wind blew from the southwest, and trees, telephone poles, and the walls of buildings fell toward the northeast over the path of the storm in that vicinity, which was nearly one-half mile in width, although the principal destruction was confined to less than one-eighth mile in width and about the same distance in length. The writer visited the scene of the disaster at Ben Davis and made a thorough examination of the débris, but was unable to find any evidence of a rotary movement of the storm or any explosive effects produced by the sudden expansion of the air within the buildings destroyed, so characteristic of tornadoes in general. A church, concrete factory, and about one dozen houses and barns were completely demolished, and many other houses and barns were damaged. Many large trees were uprooted or broken off, and telephone and electric-light poles were leveled throughout the village.

The storm was almost immediately followed by a heavy fall of rain and hail at Indianapolis, which lasted only a short time, however,

and rain had also fallen earlier in the afternoon. Heavy black clouds were observed in the west for some time before the storm, and a dull roar immediately preceded it. Thunder was heard at intervals during the afternoon and was loudest immediately after the occurrence of the maximum wind velocity.

ENGINEERING NOTES.

Lock and Dam No. 21 on the Cumberland River, situated about 20 miles below Burnside, Ky., was completed and formally opened to operation on the 20th of October. The completion of this lock gives navigable water between Burnside, Ky., and Nashville, Tenn., every week in the year, whereas heretofore navigation could only be had, with the boats plying on that river, about six months in the year. The upper Cumberland

penetrates a region that is rich in natural resources, and a number of counties in that section are entirely dependent on river transportation, as they are without railroads. While the region can not hope to attain its fullest development until railroads shall find their way to its fertile valleys and treasure-filled hills, yet dependable river transportation will help tremendously. The depth of the Cumberland River between Burnside and the new lock has been increased to about 12 feet. Plans have been started for the construction of Lock No. 20, which should be completed within the next five years. This proposed lock will tap even a richer territory than Lock No. 21 and make navigable 30 miles more of the Cumberland River.

TABLE 1.—Climatological data for October, 1911. District No. 3, Ohio Valley.

			Pears.	Tem	peratur	e, in (legre	es Fah	renh	neit.	Prec	ipitation	, in in		lays, re.	1	Sky.		-gup	9.14
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy of 0.01 inch or mor	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
New York.																				
lleganyolivar	Cattaraugus	1,800	17 3							40	3.54		0.80	Т.	13	11		14	nw.	Chas. E. Whitney. B. O. Newton.
lean	Cattaraugus		1					•••••			3.74		0.86	0	10	12	6	13	w.	John W. Alles.
leppo	Greene	1,135	10		+ .6	78	4	26 23	29 29	37	5. 10	+ 2.69	1.41	0	12	16	5 7	10	n.	J. S. Hinerman.
aldwineaver Dam	Butler Beaver	1,404 674	17	51. 4		76	4	23	29	34	8.79 4.96	+ 2.84	3.00 1.53	0	13	5	7	19 25	w. nw.	S. H. Templeton. U. S. Engineer.
rookville	Jefferson	1,173	26	50.9		81	9	18	30	54	4. 78 6. 69	+ 2.84 + 2.18 + 3.68	2.05	0	9	9	0	22	W.	H. C. Bartholomew.
arion aysville onfluence	Washington	1,078 1,127	7	54.6		79	6	23	29	40			2.00	0	13	8	11	12	8. W.	J. A. Miller. E. T. Buchanan.
onfluence	Venango	1,352 955	7 27 37	56.1	+ 3.7	77	5	22	29†	43	5. 72 5. 15	+ 2.98 + 2.27 + 3.53 + 1.90 + 1.67 + 3.72 + 2.16 + 1.58 + 1.75 + 2.58 + 2.03	1.40	0	12 10	15	4 3	23 13	w. nw.	Grant Pyle. F. E. Dixon.
ranklinreeportreensbororeenvillediana	Armstrong	772	38								6.02	+ 3.53	1.79	0	10	4 14	2	25 12		Mrs. Anna R. Bu
reenville	Mercer	768 950	15 14	50. 5	+ .9	78	4	22	29	46	4. 56 4. 89	+ 1.67	1.57	0	12 12	18	7	6	sw. nw.	James C. Cramer. A. M. Orr.
dianahnstown	Indiana	1,350 1,184	23	53.1	+ .9 + 1.8 + 1.3	79 78	4	22 23 29	29 29 29†	38	6. 67 4. 75	+ 3.72	1. 25	0	15 15	13	111	8	8. W.	A. M. Orr. R. W. Wehrle, E. C. Lorentz.
ock No. 4.	Washington	718	23 25 19								4.12	+ 1.58	1.35	0	9	3	15 7	21	8.	
yeippusttsburghegerstown	Allegheny			54. 2 54. 2	- :3	77	4	30 29 21 19 27 30 21	29 29 29 29 25 30	33 29 40	4.19	+ 2.58	1.83	0	14	9	8	14	nw.	Murray Forbes. U. S. Weather Bureau. J. G. Apple. W. H. Stoner. W. M. Schrock.
egerstown	Crawford	842 1,116 1,000	20 7	50.3	.0	76	21	21	29	35	5. 01 6. 45	+ 2.03	3.00	0	17	18	12	13 11	SW. 80.	J. G. Apple. W. H. Stoner.
merset	Somerset	2,250	55 23	52.3	+ 3.9 + .7 - 2.1	72 79 77 75	21 21	27	25	43 32	6.06	+ 1.97 + 3.06 + 1.86	.86	0	14	1 10	20 7	10 14	nw.	W. M. Schrock. Wm. Hunt.
arren	Warren	999 1,137	22	48.8	- 2.1	75	6	21	29	40	4.85	+ 1.86	1. 25	0	12	17	0	14	nw.	Anna Simpson.
Maryland.					12 34															
er Park		2,457 2,351 2,461	17	51.5	+ 3.2 + 1.5	79 72 75	1 4	23 28 25	26† 25 30	44 30	6. 23	+ 3.96 + 2.59	1. 49 0. 90	0	11 10					S. P. Specht. J. S. Miller.
antsvillekland	do	2,351	117	51.8	+ 1.0	75	6	25	30	36	5. 63	+ 2.09	1.37	0	15	8	9	19	w.	R. E. Weber.
West Virginia.											1	3 33 7	1	1					-	
neroft	Putnam	574	10	60. 2		87	6	33	25	40	4.50	+ 1.59	1.35	0	12	13	0	18	ne.	R. E. Dent.
ckleyons Run	Raleigh	699	12	57. 4k	+ 3.8 + 2.2	80 82	2† 6	30	25	43k 35	7. 20 6. 11	+ 1.59 + 5.05 + 3.46	2.50	0	ii	5k	5k	10k	w.	John A. Ewart. J. D. Riggs.
uefield	Mercer		17	57.7		79 79	1+	33	24	24			2.70 1.70	0	12	11	6	14		Norfolk & Western R. F. H. A. Darnall.
irontral Station	Upshur Ritchie	667	20 10	57. 9	+ 1.8 + 1.6	82	6	30	25	37 33 43	6.36	+ 3.14 + 0.27 + 3.06 + 2.71 + 1.92	1.00	0	11 9	0	20	11	w.	Van A. Zevely.
ntral Station	Doddridge Kanawha	900 598	11 24	52.81		81 85	6	25 35	25	33	5. 28 5. 15	+ 3.06	1.70	0	11	15		9	sw.	G. W. Sherwood. R. C. Hewes.
eston	Wirt	612	11	57.3	+ 3.3	82	1+	31	25	33	4. 23	+ 1.92	1.15	0	10	14	7 3 15	14	W.	J. M. Reed. C. T. Perry.
bakhorn	Jackson McDowell	544 1,933	10	58.8	+ 3.5 + 3.6	84 80	5	31	24	39	4.98 7.62	+ 5.38	2.08	0	10	7 13	15	13	nw. sw.	J. J. Lincoln.
kins	Randolph	1,940	13	54.9	+ 3.6	80 83	6	27	25	41 40	6. 11 5. 03	+ 3.69	1.77	0	13	11	6	14	nw.	U. S. Weather Bureau. H. Glenn Fleming.
enville	Gilmer	738	22	58.0	+ 3.4 + 3.9 + 3.5 + 2.9 + 1.3 + 3.5	83 87	1	30 33 33 26 30 25 35 31 29 31 27 30 33 31 28*	25 25 29 24 25 25 25 25 24 24 25 24 25 24 25 25 25 24 25 25 25 25 25 25 25 25 25 25 25 25 25	37 39	4.80	+ 5.38 + 3.69 + 2.61 + 1.96 + 2.71 + 3.93 + 3.95 + 2.30 + 2.77	1.02	0	8 16	14	3	14	SW.	John Holt. Joseph Gerken.
aftoneen Sulphur Springs.	TaylorSummers	1.600	18	57.6	+ 3.5	81a	1 4	28	25	42a	5. 26 5. 43	+ 3.93	1.50 1.88	0	11	16 12	5 3	15	w.	Arthur George.
nton intington wisburg	Cabell	1,400 510	17	58.9	+ 2.9	84 82	1	33	25 25+	40	6.08 4.32	+ 3.95	1.80	0	10 12	16 16	3	12	SW. W.	J. B. Lavender, C. E. L. H. Hutchinson.
wisburg	Greenbrier	2,200	111	56. 1	+ 3.5	80	4	28	1	31 38	5. 33	+ 2.77	1.87	0	10	20	1 2	9	sw.	Geo. T. Argabrite. Geo. A. Dean.
st Creek		1,033	10 15	55. 4	+ 1.4	80	16	25	25	41		+ 2.46	1.80	0	9	15	2	14	w.	Allen Smith.
disonnnington	Boone Marion	704 967	10	55. 4		79	4	27	30	40	4.77	+ 2.34	1.62	0	14	13	3	15	sw.	S. E. Bradley. Jas. A. Morgan.
rlington	Pocahontas	2,169	17	57 6e		80 79 82	4	26 32 29 24 32	25 31 29†	43.	5.96	+ 2.34 + 3.59 + 2.71 + 2.22 + 1.87 + 2.44 + 2.66	1.57 1.20	0	11	14.			8.	C. J. McCarty. Horace Atwood.
rgantownundsvillew Cumberland	Monongalia Marshall	1,250 640	36 10	55. 6 57. 2	+ 0.7 + 1.8 + 1.7 + 1.5	82	6 4	29	29†	35 36	5. 65 5. 13	+ 2.22	1.38	0	13	8 17 11	1 3	13	SW.	M. L. Brown.
w Cumberland	Haneock Wetzel	987 634	14 18	55. 5 57. 9	+1.7 + 1.5	86 83	17	24 32	29 30	45 36	4.30	+ 1.87	1.40	0	13 11	11 18	8	17	s. n.	Frank S. Evans. Wm. Ankron.
rkersburg	Fayette Wood	2, 252 638	18 24				····			32	4. 90	+ 2.66 + 2.01	1. 20	0	6	121	31	10 f	n.	Miss Donna Tully. U. S. Weather Bureau.
rsons	Tucker	1.662	12	54.6	+ 2.0 + 2.4 + 2.2 + 3.5	83 78 81 73	61	33 26 30	25 25 24†	43 39	5.00	+ 2.46		0		9	13	9		J. W. Swisher.
ilippi	Barbour	1.192 2,785	18 20	55. 6 53. 4	+ 2.2	73	6	30 29	241	39	6.81	+ 2.46 + 4.19 + 5.12	1.87	0	14	10	15	6	nw.	J. D. Dadisman. Dr. J. L. Cunningham.
nevilleint Pleasant	Wyoming Mason	553	21			85	1+	31	25	41	4. 23	+ 1.95	2.04	0	12	ii	5	15	S0.	W. V. Senter. W. D. Holmes.
wellton	Favette	904	14	58. 2	+ 1.0 + 3.9 + 3.5 - 0.1	84	1	33	24+	38	5. 92	+ 4.29 + 6.37 + 2.22	1.19	0	11	8	15	8 9		Morris Hansford. H. Scott.
ncetonbertsburg	Mercer	2,469 574	10	54.1 57.2	+ 3.5	76 85	1	33 28 32 27 30	26 24†	34	9.65	+ 2.22	2.75 1.75	0	9	11 5 8	11 0	26	W.	E. P. Turley.
anithfield	Roane Wetzel	639 919	8	57. 2 53. 8		83 75	1	27	25 24†	31	5.50 5.59		1.69	0	14	13	12	11 9	n.	Wm. F. Ryan. G. M. Whistler.
encer	Roane	710	13	55. 1		79	16	29	24	38	4.30	+ 1.81	1.17	0	10	0	23	8		J. E. Baughman.
rra Alta	Braxton	839 3, 207	9								4.98		1.65	. 0	7	17	2	12	******	C. F. Dodge.
ionlley Fork	Monroe		7	53.6		76	1	25	26	38	4.85		1.46	0	8	12	14	5		. Shelton Clark. Miss Blanche Pierson.
ebster Springs	webster	1.000	7	58. 2		80 75	6	28	25	38 26	6.31		1.87	0	11	8	7	16 11	sw.	D. H. Hamrick. C. P. Wangh,
elisburg	Brooke	1, 225 824	12 21 26	53.1 54.4°	- 0.2 - 0.4	820	1	28 28 30*	25 29 25†	26 34*	3. 52 5. 35	+ 2.41	0.70 1.89	0	15 9 11	10 51 13	111	13b	ne.	Miss C. M. Davis. Miss M. B. Forsyth.
heelingilliamson	Ohio Mingo	645 660	26 11	54. 4 60. 6	+ 2.3	81 88	1	29 36	291	33	4.02 7.14	+ 0.86 + 2.41 + 1.72 + 5.07	1.25	0	11	13	5	13		Miss M. B. Forsyth. J. F. Keyser.
Ohio.														ŧ						
nesville	Athens	630 1,327	7 24	56. 4 52. 6	+ 0.9	84 78	6	25 26 23 20 ⁴ 28 28 23	29 29 29 29 29 29	39 34	3.95 4.94	+ 2.70	1.46 1.02	0	11 14	14	7 13	10	nw.	F. W. Gibson. S. M. Painter.
llefontaine	Logan	1,276	24 32 20	52.0	- 1.8 + 1.2	78 80 78d	6	23	29	34 35 38d	4.60	+ 2.70 + 2.16 + 2.81	1.40	0	11	10	13 10 12d	11	W.	Cory L. Lane. Miss Mary Elliott.
densburg	Knox	1,100 1,245	8	53.5	7 1.2	79 79	4	28	29	30	4.98 4.32 4.86	7 2.01	1.41	0	10 11	12	6 16	13		Harry B. McConnell. Samuel Mehaffey.

Table 1.—Climatological data for October, 1911. District No. 3—Continued.

			years	Tem	peratur	e, in	degre	es Fal	renh	neit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	N 2	Number of clear days.	200	Number of	P	Observers.
Ohio-Continued.				-																
Camp Dennison	Tuscarawas	884	18 18	56.0 52.0	+ 0.8 + 0.4 + 1.1	85 85	6	26 24 27	29 29 29	39	4.94	+ 3.14 + 2.62 + 2.43	1.09	0	13 12	11 9	11 14	8	sw. n.	Henry F. Pinkvoss. Ed. S. Slingluff.
Canton		1,089	28 16	52.6 53.6	+1.1 + 2.3	80	6	27 25	29 28	34	4.66	+ 2.43	0.88	0	15	16	0	11 24	nw.	Carl H. Meyer. J. W. Shaw.
hillicothe	Ross	630	8																	. Marion Mackey.
incinnati	Hamilton	628 694	40 23	57.4 53.2	+ 0.4	84 84a	6	35 28a	28 28†	33	4.54	+ 2.22 + 2.54	2.30	0	14	6	11 3a	14 10a	ne.	U. S. Weather Bureau. Mrs. S. W. Courtright.
larington	Monroe	600 918	8 33	55.6	0.0	80 82	1†	27 32	29 28	38	5.55	*******	1.50	0	16 11	10	11	17 13	SW.	Col. S. Tschappat. U. S. Weather Bureau.
olumbusoshocton	Coshocton	770	2	54.1	0.0	82	6	02	20			+ 2.86	2.69	0					se.	. Mrs. Ada Jeffries.
Payton (1) Payton (2)	Montgomery	899 790	30	54.7 54.6	+ 0.5	83	6	32 26	29	35	4.34 5.19	+ 3.03	1.76 2.00	0	13	7	5	19	ne.	U. S. Weather Bureau. Mrs. Edith L. Boyer.
elaware	Delaware	927	14	53.0	- 0.7	84 77	16	28 30	24	38 35 39	5.12	+ 3.11	1.27	0	9	15	5	11	W.	Prof. L. L. Hudson.
emosennison			23	55.0 52.0	+ 2.2	84 79	21	30 23	29	39	5.25	+ 2.82	1.63	0	14	14	8 7	9 8	n. n.	J. T. Dysart. Water Supply Co.
rankfort	Ross	745	19	53.8	+ 2.1	82	1	27	29	35 37	3.15	+ 1.96	1.00	0	8	17	9	13 12	W.	O. A. Cory. S. M. Luther.
arrettsville	Portage	960	27 29 22	54.0	+ 0.9 + 1.4	75 79	6	25	29	38 33 33	5.57	+ 3.32 + 3.16	2.28 2.02	0	12	13	4	14	nw.	Dr. L. E. Davis.
ratiot		1,000	22	53.0	$+0.1 \\ +3.0$	78	6	25	29	33	4.81	+ 2.77	1.52	0	11 7	11 14	12	8	W.	W. B. Longstreth. W. F. Kenyon.
reen Hill	Columbiana	1,135	17	50.6	- 0.2	78 88 75	4	23 27 20 25 25 33 20 28 25 29 31 34 26°	29 24 29 29 29 29 29 24 29 30 29 25 29 25 29 29 29 25 29 29 29 29 29 29 29 29 29 29 29 29 29	35 35	4.09	+ 2.77 + 2.05 + 2.03	1.08	0	12	12	13	6	nw.	Jos. E. Bentley.
reenvilleaydenville	Darke Hocking	1,060	25	53.2 55.2	+ 1.1	81	6	28 25	30 29	33.	5.97	+ 4.11	2.55	0	11 9	16	11 2	11	n. nw.	Geo. A. Katzenberger. H. W. Stiers.
illsboro	Highland	1,063	32	55.6	+ 0.2	84	14	29	29	40	5.13	+ 3.04	1.66	0	10	6	14	11	8W.	Carey H. Roush.
onton	Lawrence	575 975	28 43	57.2	+ 3.4 + 1:5	85	6	31	25 29	41 42		+ 1.33 + 2.27	0.93	0	11 7	13 16	7 0	11	sw. ne.	James Bull. Dr. J. B. Owsley.
entonillbuck	Hardin	1,015	19	50.40		80°	6	26°	28c	32 35	2.30	- 0.09	0.77	0	7 12	16	50	140	n.	N. S. Martin.
ancaster	Fairfield	898	16	55.0	+1.0	79	1+	22 28 26 30	29	32	6.76	+ 4.22 + 4.83	1.25 3.04	0	10	16	5	10 14	se. sw.	R. L. Renshaw.
cConnelsville	Washington	710 627	27 91	55.6	+ 2.1 + 2.6	79 80	4	26	29	35 31	6.09	+ 3.79 + 2.25	3.39 1.92	0	12 11	10 12	11 6	10 13	s. n.	C. H. Morris. Prof. T. D. Biscoe.
arion	Marion	980	33	54.1	+ 0.7	82	6	25	29 30	36	5.60	+ 3.38	1.55	0	8	9	8	14	sw.	Dr. E. H. Raffensperge
illigan		1,200 875	19 18	53.2 54.4	+ 1.5 + 0.7	78 82	6	27 22 20 23 22 22 22	30 29	35 38	5.62 5.21	+ 3.71 + 2.85	1.51 2.68	0	11 10	12 15	11 7	8	ne.	L. H. Burgess. V. C. Eveland.
illport	Columbians	1,145	18	51.2	- 0.7	75	4	20	29	35	3.91	+ 1.86	0.93	0	14	7	15	9	SW.	G. F. Copeland.
ellie ew Alexandria	Jefferson	850 1.050	11 26	57.2	$+0.8 \\ +4.2$	77 83	6	23	29 29 29 29 29 29 29	34	5.60	+ 3.66 + 1.65	1.43	0	11 6	13	22	4 15	sw.	Ethel L. Gamertsfelder. Mrs. Mary K. Pennell.
ew Berlinew Waterford	Stark	1,100	18 16	50.9 51.6	- 0.9	75 76	4 4	22	29	33 34	5. 27	+ 3.24 + 3.41	1.74	0	13	16 16	5 8	10 7	nw. sw.	Clayton Holl. Sam. C. Scott.
hio State University	Franklin	757	28	53.7	+ 1.5	82	6	27	29	35	5.39	+ 3.28	2.03	0	12	10	9	12	n.	Prof. H. C. Lord.
ataskaiaeebles	Licking	1,015 645	19	53.3 56.8	- 0.1	80 85	6	26 26	29 24	34 40	5.68	+ 3.45	2.48 1.25	0	12	8 7	15 14	10	SW.	J. N. Ridenour. Ora O. Smalley.
hilo	Muskingum	1,018	16		- 0.5	78	6	28	29	34	4.47	+ 2.57	1.51	0	11	13	7	11	se.	L. C. Burcholter.
iqualattsburg	Miami	847 1,130	18	53.0	- 1.3	80	6	28	29	35	8.32 5.73	+ 3.77	2.85	0	12	14	9	15	ne. w.	Harry L. Roberts. F. E. Stewart.
ortsmouth	Scioto	527	80	57.0	+ 1.4	85	1	33	25	34		+ 0.67	0.88	0	12	13	0	18	W.	Dr. H. A. Shirrman.
ittman	Wayne	990	19	51.8	+ 0.6	79	20	23	30	42	5.00	+ 2.69	2.00	0	9	10	4	17	n.	Neil J. Gast. J. B. Gish.
henandoahidney	Richland	1,100 985	19 28	50.9	- 0.8	76 83	6	26 26	29 29	32 34	6.38	+ 4.48	1.84	0	13	8	21 9	8	n. ne.	T. B. Arnett. Hambline B. Blake.
omerset	Perry	1,080	12	54.8	- 0.9 - 0.4	78	5	29	29	34	6.06	+ 3.72 + 3.77	2.82	0	11	13	9	9	w.	Miss M. W. C. Sheridan W. A. Webster.
pringfieldummerfield	Noble	980 1.187	17 5	54.2		81	4	23	29	37	6.38	+ 4.39	2.59	0	14	6 8	17 15	8	se. sw.	H. R. McClintock.
yracusehurman	Meigs	583	1	59.0		87	1	31	29 24 24 29 29	40 35	4.85		2.06	0	9	7	13	11	w.	E. G. Campbell.
rbana	Champaign	1,031	18 43	53.0	+1.5 -0.6 $+0.6$	84 81	6	31 25	29	32	7.58	+ 0.69 + 5.39	0.75 3.52	0	12	8	16	7	ne.	Prof. J. H. Williams.
Varren	Trumbull	900 590	22 28	52.0	+0.6 + 0.8	75 86	6	24 29	29 24†	35	5.39	+ 3.02 + 1.34	1.90	0	9	15	5 5	11	sw.	M. D. McCorkle. Dr. Peru Hutt.
Vaynesville	Warren	700	26	54.4	- 0.3	82	6	27	29	35	3.65	+ 1.51	0.82	0	10	13	6	12	nw.	Chas. Michener.
Vooster	Mahoning	1,030 846	32 18	52.0	+ 0.9	75	4†	22	29	34	5. 45 8. 15	+ 3.24 + 5.95 + 1.63	1.30	0	13 11	13	1	16 17	nw.	Experiment Station. G. R. Patton.
Nanesville	Muskingum	700	24								3.84	+ 1.63	1.31	0	11	13	13	11	8.	S. G. Sprague.
Indiana,																				
nderson	Madison	892 522	16		- 0.7	84	6	26	29	32	4.92 3.44	+ 2.39	2.46 0.80	0	12 12	13	7	11	sw.	W. H. Stanton. Robt. E. Ray.
loomington	Monroe	744	16	54.5	- 2.4 + 0.3	85	6†	27	24	41	4.33	+ 0.80	1.44	T.	13	10	6	15	Se.	Earl E. Ramsey.
lufftonutlerville	Jennings	835 767	16 26	57.4	+ 2.5	88	6 3	26 28 23 27 25 25	28 24 29 24 29 29 29	36	6, 81	+1.06 + 4.19	1.20	0	13 13	10 12	13	10	W.	Tom R. Johnston. C. F. Hole.
ambridge City	Wayne	941	20	51.8	- 0.6	88 85	6	23	29	43	5.30	+ 2.69 + 1.99	2.57	0	14	10	6	15	SW.	Charles Lemberger.
onnersville	Favette	769	28 29	55.2	+0.8 + 2.2	85 86	6	27 25	29	38 40	2.86	$+1.99 \\ +0.25$	1.56	0	15	9	15	18 13	SW.	John A. Perry. H. T. Swindler. P. H. Burns.
rawfordsvilleelphi	Montgomery	780 668	1 26		+ 0.3	86 85	6	25 26	29 29	36 36	3.38		1.00	0	8	12	11	8	W.	P. H. Burns.
minence	Morgan	782	5			99						+ 1.58	0.82	0	15	5	10	16		. L. A. Higginbotham. E. E. Kelso, M. D.
vansvillearmersburg	Vanderburg Sullivan	386	35	55.8	+ 1.6	88	6	38	24	31	1.64	-1.46 -0.17	0.91	0	11 8	5	17 19	8 7	ne. sw.	U. S. Weather Bureau. Maurice Yeager.
armland	Randolph	1,101	29	52.1	-0.7 -0.5	80	6	29	29	35	4.16	+ 1.87	1.10	0	8	8	1 1	22	ne.	W. J. Davisson.
reenfieldreensburg	Hancock Decatur	905 954	15	55.1	- 3.6	83	6	29 20 28 27 28 26 32 32 254	29	32 32	4.34	+ 0.02	1.88	0	9 8	17	22 11	9	W.	Frank Larrabee. C. C. Morrison, M. D.
untingburg	Dubois	462	3	61.5	+ 0.2	92	3	28	31	38	1.98		0.87	0	6					. H. Dufendach.
untington	Marion	822	18 40	54.8	+0.2 -0.2	76 84 88	16	32	29	32 32	4.03	+1.83 + 1.24	0.80	0	14 12	12	10	9	s. n.	Chas. McGrew. Section Center.
effersonville	Clark	455	29	58.8	- 0.2 - 0.5	88 88d	3	32	24	36 44d	3.27	+ 0.88	1.16 0.81	0	14 12	8	11 3	12 17	n. w,d	John C. Loomis, Dale R. Warrick.
okomo	Howard	840	19	52.7	- 1.3 - 1.1	84	6	24	24 24 29 29 29 31 29 29 24 29† 29 29	35	3.85	+ 1.67	1.05	0	11	9	11	11	sw.	P. H. Robertson.
a Fayetteaurel	Tippecanoe		32	52.2 53.2	- 1.1	84	6 6†	25 24	29	31 39	2.86 2.96	+ 0.49	0.65 0.85	0	14 15	15 13	1	12 17	sw. e.	Wm. J. Jones, jr. Burch Schultze.
ogansport	Cass	620	31	53.2	+ 0.1	86	6	24	29	44	4.03	+ 1.53	1.02	0	11	12	0	19	0.	Chas. Massena.
adison	Jefferson Crawford	460 363	19 29	59.6	+ 0.1 + 2.1 + 0.8	87 87	6	24 25 24 24 33 28 24	29 24 24	33 36 36	8.30 4.25	+ 5.78 + 1.10	4.70 2.16	0	13	14	10 10	7 9	w. nw.	Miss F. Cooperider. J. M. Johnson.
larion	Grant	814	25	52.8	-0.4 + 2.0	83	6	24	29	36	4 07	1 1 08	1.15	0	14	7	10	14	sw.	James F. Hood.
fauzyfonticello	White	980 674	31				6	25	29†	38	5, 22	+ 0.35	0.93	T.	12 11	10	8	13 13	ne.	J. E. Loughry.
oores Hill	Dearborn	980		55.9	+ 0.5	83	61	30	24	35	5.90	+ 2.64		0	14	10	1	17	W.	W. S. Bigney.

TABLE 1.—Climatological data for October, 1911. District No. 3—Continued.

			, year	Tem	perature	, in c	egree	s Fah		-	Prec	ipitation	, in in	enes.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevailing wind tion.	Observers.
Indiana—Continued.																				
ount Vernon aoli rinceton ichmond ochester ockville one	Fulton	410 611 481 972 775 722 370	25 14 29 26 6 25 8	52.8	+ 0.8 + 0.3 + 3.3 0.0 - 0.2	88 88 91 84 78 84 89	6 3 6 6 6	31 34 29 25 28 30 32	24 28 23 29 29 29 29 24	33 37 34 36 28 30 39	3.78 2.42 5.03 3.76 2.84	- 1.57 + 0.35 - 0.03 + 2.26 + 0.42	0.60 1.29 1.05 2.30 1.20 0.92 1.01	0 0 0 0 0 0	11 13 8 12 14 12 12	10 9 14 6 10 9 13	4 14 5 15 7 6 7	17 8 12 10 14 16 11	nw. ne. nw.	Guy B. Green. James A. Gillum. Albert Mills. Walter Vossler. G. P. Keith. Dr. W. N. Wirt. Adam Anspach.
ulamonia ulem sottsburg symour nelbyville soals erre Haute seedersburg evay incennes 'ashington hitestown inona Lake	Jay Washington Scott. Jackson Shelby Martin Vigo Fountain Switzerland Knox Daviess Boone Kosclusko	717 570 610 768 523 498 612 525 431 484 529 865	6 18 17 24 7 4 21 12 30 19 15 3	56. 9 58. 4 57. 4 55. 2 56. 5 55. 0 60. 3 56. 3 57. 5 51. 6 53. 0	+ 1.0 + 1.4 + 1.8 - 0.7 - 1.6 + 3.3 - 1.0 + 0.4	86 85 88 85 87 87 85 84 90 88 81 82 87	6† 3† 6† 6 6 6† 6 6 6† 6	27 33 27 27 27 27 31 25 35 30 28 29 26 28	24 24 24 29† 29† 29† 24† 24 29 29 24	36 33 39 35 34 35 30 38 34 37 33	3.81 5.57 5.78 3.73 4.05 2.38 3.29 9.20 2.85 4.10 4.64 4.41	+ 0.86 + 3.02 + 2.80 + 0.12 + 0.80 + 6.90 - 0.21 + 1.06	1.14 1.67 2.88 0.84 1.99 0.70 0.56 3.10 1.10 2.00 1.28 0.85	T. 0 0 0 0 0 0 0 0 0 T. T.	11 10 10 12 9 9 16 11 11 11 18	13 9 7 8 13 14 4 10 15 7 4 7	9 9 16 13 4 8 11 2 3 18 18	9 13 8 10 14 9 16 19 13 6 9	w. n. nw. sw. sw. sw. sw. sw. sw. sw. se. w. sw. se.	Emmet S. Allen. Frank H. Park. J. Robt. Blair. Edgar G. Hodson. Rev. G. Halleck Rowe. Prof. R. G. Gillum. L. A. Culver, Jr. Miss Frederica Boerner Garrett V. List. Charles C. Feagans. Clyde O. Laughner. Rev. Albert A. Young.
orthington	Greene	526	29	56.6	+ 1.1	87	6	28	24	33	3.38	+ 0.70	1.50	0	9		13	11	sw.	D. W. Solliday.
lbion armi. harleston anville. quality. airfield. lora. olconda. oopeston. c.Leansboro. letropolis. lontrose. lount (armel. lew Burnside. llney. alestine. aris. hilo. antoul. oobinson. umner. uuscola. rbana. Kentucky.	White Coles Vermilion Gallatin Wayne Clay Pope Vermilion Hamilton Massae Efflingham Wabash Johnson Richland Crawford Edgar Champaigndododododododododododododododo	500 715 462 346 599 424 556	20 26 10 13 18 25 33 9 28 11 10 16 24 29 18 27 20 11 5 18 10	54. 9 54. 8 60. 1 58. 2 56. 6 61. 2 52. 8 58. 2 55. 3 57. 4 57. 6 57. 6 53. 2 54. 0 57. 8	+ 1.4 - 0.6 + 0.2 + 0.1 + 1.0 + 1.5 + 1.0 - 1.8 - 0.6 + 1.1 + 2.2 - 1.4 + 0.4 + 0.2 - 0.2	88 85 86 90 99 90 91 82 90 88 88 88 88 88 88 88 88 88 88 88 88 88	3 6 6 6 6 6 6 6 4 3 3 5 8 3 7 8 3 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	28 26 32 30 29 31 27 29 31 26 30 30 28 26 27 31 30	24 29 24 24 24 24 29 24 24 24 24 28 24 29 29 29 24 24 24 24 24 24 24 24 24 24 24 24 24	32 34 35 34 35 34 35 34 35 40a 28* 37° 39a 31 42 32 33 33 33 34 30 32 32 32 33 34 35 36 36 36 36 37 38 38 38 38 38 38 38 38 38 38 38 38 38	3.54 2.58 2.01 2.38 4.19 1.87 0.94 4.19 2.80 4.19 2.57 3.95 3.11 4.65 2.44	- 0.18 + 0.87 + 1.27 - 1.01 - 0.34 + 0.37 - 0.60 - 0.43 - 2.21 + 0.19 - 0.25 + 0.74 + 1.59 + 1.75 + 1.46	0. 85 0. 85 1. 47 0. 63 1. 30 1. 07 0. 90 0. 85 0. 99 0. 85 1. 15 1. 26 1. 72 1. 63 1. 60 1. 02 1. 10 0. 71 3. 22 0. 71	0 0 0 0 0 0 0 0 0 0 0 T. T. T. 0 0 T. T.	9 7 10 13 8 7 8 8 15 5 3 3 10 11 8 9 11 7 7 7 8 13 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 8 8 7 7 7 7 7 7 8 8 8 7 7 7 8 8 8 7 7 8 8 8 8 7 7 8	14 15 5 10 15 12 16 13 17 14 14 18 9 9 9 9 13 16 14 12 16 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	6 0 15 7 9 2 3 6 6 7 7 16 3 11 10 9 16 9 5 1 7 721	11 16 11 14 7 17 12 12 8 10 7 19 11 15 13 6 9 10 16 12 6	nw. n. s. se, nw. nw. sw. s. nw. sw. nw. sw. s. n. ne. sw. ne. sw. se. n.	B. F. Michels. Daniel Berry. Jacob B. Daisy. J. J. Lemon. Dr. L. W. Gordon. George A. Tromly. Joseph S. Peak. Dr. D. Lawrence. S. F. Hoskinson. Mrs. Mary C. Robinson Prof. M. N. McCartney J. C. Spitler. Mrs. H. M. Phillips. Thomas H. McCabe. Victor E. Phillips. Duane Shaw. H. P. Twyman. H. A. Burr. William Breiner. A. P. Woodworth. O. A. Fyffe. E. W. Lester. Prof. J. G. Mosier.
lpha nchorage ardstown. eattyville. eaver Dam erea owling Green urnside. alhoun. atlettsburg arlington dmonton ubank. almouth armers. rankfort ranklin reensburg igh Bridge opkinsville vington eitchfield exington ousville arion. aysville iddesboro. ount Sterling wensboro aducah aintsville ikeville ichmond t. John oott belby City heelby ville aviorsville aviorsville ichmond t. John oott heelby City heelby Ville aviorsville aviorsville aviorsville aviorsville aviorsville aviorsville aviorsville aviorsville	Jefferson Nelson. Lee Ohlo Madison. Warren. Pulaski. McLean. Boyd Hopkins Metcalfe. Pulaski. Pendleton Rowan. Franklin Simpson Green. Jessamine Christian Breckenridge Grayson. Fayette Marion. Jefferson Crittenden Mason Bell. Montgomery Daviess McCracken. Johnson. Pike Madison. Hardin. Kenton. Boyle. Shelby Spencer	700 637 650 441 1,070 500 773 397 544 370 600 01,1/7 530 608 560 691 581 762 524 1,128 635 989 647 1,128 762 77 759	17 10 14 7 8 8 10 22 20 17 22 20 17 22 5 20 17 22 5 20 17 22 5 20 17 19 8 15 13 14 40 16 16 16 16 16 16 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	56. 4 59. 2 60. 1 59. 2 60. 0 61. 5 62. 2 61. 4 60. 3 59. 4 60. 3 59. 4 58. 5 50. 4 59. 7 59. 6 62. 3 59. 4 59. 7 59. 6 61. 2 59. 7 59. 6 61. 2 59. 6 61. 2 59. 7 59. 6 61. 2 59. 6 61. 2 59. 6 61. 2 59. 6 61. 2 59. 6 61. 2 59. 6 61. 2 59. 7 59. 6 61. 2 59. 6 60. 2 50. 2 50	+ 2.1 + 0.8	92 93 93 93 87 87 81 94 90 93 87 88 88 88 89 91 89 89 89	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 28 29 31 30 32 30 32 32 33 34 32 37 38 34 32 30 31 32 32 33 34 32 33 34 35 36 37 38 38 39 30 30 30 30 30 30 30 30 30 30	23 24† 24 24 24 22 23† 24 22 23† 25 24 25 25 24 25 25 24 25 25 26 27 28 28 24 24 25 26 27 28 28 28 28 28 28 28 28 28 28 28 28 28	42 46 40° 44 32 38 45 34 31 33 33 33 34 33 33 33 33 33 33 33 33 33	$\begin{array}{c} 4.08 \\ 2.98 \\ 3.16 \\ 3.16 \\ 3.07 \\ 1.15 \\ 3.19 \\ 3.5.59 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ 3.41 \\ 3.23 \\ $	- 0.11 + 1.47 + 1.17 + 2.40 - 0.29 + 1.09 + 1.01 + 1.01 + 1.01 + 1.01 + 1.01 + 1.02 + 1.03 + 1.05 + 0.91 + 2.06 - 1.41 + 2.72 + 1.82 + 1.46 - 2.16 - 2.16 + 1.63 + 1.63 + 1.63 + 1.63 + 1.63 + 1.64 + 2.72 + 1.64 + 1.04 +	1. 36 6. 62 0. 94 1. 30 0. 70 0. 89 1. 49 0. 89 1. 49 0. 89 1. 49 0. 87 2. 80 0. 95 0. 40 0. 87 2. 80 0. 95 0. 10 0. 72 1. 90 0. 90	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 11 11 11 8 12 7 8 11 12 6 6 12 7 7 13 9 12 7 7 13 14 12 10 11 1 8 9 12 10 11 11 11 11 11 11 11 11 11 11 11 11	10 12 11 10 12 15 11 12 8 8 19 17 13 14 11 17 13 12 12 13 12 12 14 15 15 17 18 19 17 18 19 17 18 19 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	7 8 1 6 8 8 6 6 3 5 16 0 4 4 9 a 7 7 b 2 2 21 0 0 1 1 1 5 1 4 4 9 5 5 2 0 0	14 11 19 15 11 10 10 10 15 14 14 16 6 20 13 13 15 15 15 11 10 10 10 10 10 10 10 10 10 10 10 10		W. W. Hicks. C. E. Barrett. G. M. Talbott. G. W. Cann. T. S. Woodward. C. F. Rumold. Mrs. L. G. Causey. G. M. Estes. W. A. Taylor. Mrs. Mertle M. Bruns. Brick Southworth. Miss Lee Ray. Mrs. Katie Payne. J. V. Oldham. Miss Gertrude Sorrell. J. H. Roberts. J. E. Newman. L. C. Alcorn. Miss Gertrude Sorrell. J. H. Roberts. J. E. Newman. L. C. Alcorn. Miss Lulu Wood. W. F. Randle. W. J. Piggott. John E. Stone. U. S. Weather Bureau. Loretto Academy. U. S. Weather Bureau. B. C. Paris. Mrs. Mary D. Marsh. B. H. Perkins. James O'Connell. Henry S. Berry. S. A. Fowler. R. L. Atkinson. I. M. Williams. J. W. Crooke. Bethlehem Academy. E. B. Wilson. H. F. Ewing. C. R. Burnett. E. D. Bourne. Noble C. Jones.
Villiamstown	Grant	943	9	30. 3	- 0.5	89	3†				6. 20	+ 3.34	3.75	0	11	14	3	14	*****	Mrs. Sarah E. Carter
shwoodenton		725 880	32 26	63.3	+ 3.6 + 6.2	92 94	21	32 34	23 23†	38 38	2.76	+ 0.14 + 1.76	1.20 1.85	0	6 7 11	9 7 8	11 18 3	11 6 20	s. n.	Mrs. Joseph W. Flemin George L. Williams, David B. George.

TABLE 1 .- Climatological data for October, 1911. District No. 3-Continued.

	11-570		years	Tem	peratur	e, in	degre	es Fal	hrenh	eit.	Prec	dpitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Tennesses-Continued.																				
Bluff City	Sullivan	1.026	14	62.8	+ 4.4	92	7	31	29	37	5.50 2.82	3.42 + 0.29	1.86	0	10	10	9	21 13	sw.	John W. Fisher. John Lacy.
arthage	Smith	. 500	27 11	65.2	+ 5.9	96	3	33 34	25† 23†	41	2.45	+ 0.11	1.55	0	7	11 12	3	17	SW.	Earl C. Pickering.
edar Hillelina			11 8		+ 2.3	94	3	34	231	35	2.43 3.07	+ 0.41	0.55	0	10	10	10	17	n. s.	J. Frank Ruffin. Stephen B. Anderson.
enter Point	Chester	400	14								2.67	+ 0.18	0.81	T.	6	19	2 8	10	n.	Halbert H. Bailey.
harlestonhattanooga	Hamilton	709	14 32	65.6	+ 4.8	92	3	39	23	29	5.56	+ 3.18 + 2.03	3.86	0	8	15	12	8 9	n. n.	John T. Weeks. U. S. Weather Bureau.
arksville	Montgomery	. 500	48 23	61.2	+ 4.4	89	2	33	24	33	2.84	+ 0.51	0.80	0	8	17 20	0	10	ne. sw.	Prof. James A. Lyon.
intonandridge	Jefferson		7								3.90	7 2.01	1.30	0	6	12	5	14	W.	Hugh Evans. James E. Swann.
ecaturickson			15	64.8	+ 5.3 + 2.2	96	7 3	31 31	23 23	38	5.35	+ 2.43 + 0.14	2.84 0.65	0	11 5	14 16	13	6	sw.	James E. Swann. J. Worth Lillard. Nathan R. Sugg.
over	Stewart	500	16									T 0.14								. Asa M. Tippit.
unlaplizabethton	Sequatchie	726 1,575	21	65.0		96	3	31	23	43	4.08	+ 2.74	1.75	0	8 7	10 12	12 2	17	6.	S. Bradford Boyd. Charles Boyd.
rasmus	Cumberland	1,850	14	59.8	+ 4.4	87	1†	25	23	44	4.09	+ 0.65	1.18	0	10	13	12	6	SW.	Mrs. Sara E. Ashley.
orence		648	29 21	62.6	+ 4.1 + 3.8	90	2	32 34	23 23	34	2.71	+ 0.37 + 0.32	1.10	0	6	18	8 7	8	8.	Mrs. Sara É. Ashley. Erastus P. Bell. Young M. Rizer. Ed F. Wright.
all's Hill	Rutherford		9								2.50		1.50	0	5	18	0	13	S.	Ed F. Wright.
arrimanohenwald		983	16 25	64.7	+ 6.1	91 89	3	32 30	23	36	7.38	+ 4.89 + 2.56	3.98	0	6	7 15	21	7	nw.	Robert R. Ayres. John Lutzelman.
on City	Lawrence	600	14	63.8	+ 4.9 + 3.7	93	3†	30	23	37	3.03	+ 0.61	1.13	0	5	8	17	6	nw.	Capt. H. Paul Seavy. Calvin C. Maddox.
fferson City		1.620	1	61.6	+ 5.2	89	2	33	24†	38	4. 27 3. 12	+ 0.71	1.84	0	6	12	8	11	n.	Ward Crosby,
hnsonville	Humphreys	. 364	15 20	62.4	+ 2.4	92	3	32	23†	37	2.39	+ 0.07	0.96	0	7 7	18 18	0	9	nw.	Miss Sallie B. Matthews
ingston	Knox	977	40	64.0	+ 5.9	90	3	38	25	33	6.13	+ 3.74 + 1.17	2.60 2.34	0	8	10	12	9	n. ne.	Henry Crumbliss. U. S. Weather Bureau.
banon		522	12	63.8		92 95	3	32 31	23 24	39 44	3.33		1.30	0	6	13 15	6 9	12	n.	H. Logan Fields.
wisburgvingston		1,065	16		+ 4.5	92	31	29	23	46	2.60	0.0	1.00	0	3	12	13	6	nw. w.	Dr. Robert D. Crutcher L. H. Carlock.
udon	Loudon	816	8 23	89 8	1 2 2	90	3	35	23	32		+ 2.66	1.90	0	8 5	9 15	8	14	W.	Robert W. Clark.
nnville	Monroe		7	02.0	+ 3.3	30		00	20		3.46	+ 0.94	1.46	0	6	19	0	12	n. e.	Col. James H. Burrow. Miss Alice L. Headrick.
cMinnville		1,011	27 15	64.0	+ 5.7	92 91	3	33 35	23†	38	2.98	+ 0.30 + 1.70	1.14	0	10	8 16	16 10	7 5	n. e.	J. Tilden Sparkman. Mrs. Sam T. Broyles.
aryville ountain City	Johnson	2,486	14	57.8	+ 5.0	80	1†	29	24	41	4.40	+ 1.48	1.29	0	10	16	7	8		Edward E. Barry.
ashville		654 1,280	40 21	63.0	+ 2.7 + 7.2	90 86	3	35 36	23 23	33		- 0.27 + 0.98	1.50	0	8	11 7	10	10 21	ne. sw.	U. S. Weather Bureau. Dr. Charles T. Burnett.
ew River	Scott	1.215	4								2.94		1.20	0	5	9	6	16	W.	Burl W. Buttram.
newood	Bedford Hickman	770	18	64.4	+ 2.9	93	3	32 30	231	39 45	2.70	+ 0.09	1.20	0	6	13	11	7	n.	Mrs. Ross Woods. Miss Carrie Cash.
pe	Perry	400	14																	Miss Bessie Howard.
ogersville			26 23		$+5.9 \\ +6.0$	89 89	7 3†	33 25	24†	41 47	2.73	+ 2.02	1.18	0	12	16	7 7	8	e. nw.	Fred Beal. Samuel G. Wilson.
vannah	Hardin	442	27				7									5				William Fort Bell.
vierville	Sevier Franklin	2,000	15	63.3	+ 4.4	90 86	31	33 34 34	25 27	38		+ 1.25	1.53	0	5	11	11 6	15 14	SW.	Herbert O. Eckel. Arthur H. Noll.
parta	White	920	5 8	63.0		89 92	3 2	34	23† 24	36 40	2.25		1.40	0	5	16 20	8	7 7	W.	Ernest H. Hull. Hudnall A. Boden.
oringville	Henry Claiborne	1,350	14	63.6	+ 7.3	90	3†	28 29	23†	45	3.94	+ 1.33	0.82	0	8	16	6	9	n. s.	J. Caloway Carr.
alling	CoffeeWhite	1,075	23 8	62.9	+ 5.0	90	3	30	23	34		+ 0.59	1.50	0	7	13 10	11	7	8. 8W.	Reuben T. Moore. John K. Roberts.
aynesboro	Wayne	753	25		+ 4.9	92	3	31	24		2.94	+ 0.88	1.15	0	6	15	8	8	n.	Harry C. Boyd.
ildersvilleorsham	Henderson	400 550	14	65.2	+ 5.4	93	3	34	23†	36	2.45 2.50	- 0.43	1.65 0.85	0	5 7	15 12	7 5	9	n. w.	William R. Wilson. James G. Elizer.
ukon	Lincoln		14	62.6	+ 1.2	89	1	33	23	33		+ 0.50	1.63	0	4	13	12	6	n.	William P. Watson.
Alabama.																				111111111111111111111111111111111111111
ridgeport	Jackson	660	11								4. 29	+ 1.10	2.00	0	6				n.	R. L. Moore.
orence	Morgan Lauderdale	573	29 27	65.4	$+3.0 \\ +3.5$	100	2†	33	25	34		+ 2.15 + 2.04	1.85	0	9 5	17	0	10 12	ne. e.	Robt. E. Coburn.
untersville	Marshall	580	1	66.3		95	4 8	36	23	37	4.93		3.40	0	5	9	8	14		L. S. Long. Albert Klish.
adison	Madison	573 360	17 14	62.9	+ 5.1 + 1.7 + 0.8	90 95 96 93	8	33 35 36 32 30	23 23 23 23 23 25	30 37 39 45	3,00	+ 2.43	2.00 1.06	0	6	28 12	2	17	nw.	James F. Long.
ottsboro	Jackson	652	28 29	61. 2b	+ 0.8	94b	6	35b	25	39р	3.02	+ 0.10 + 0.67 + 1.97	1.40	0	6	12b	4b	13b	nw.	H. A. Caldwell.
scumbia	Colbert	488	29	63.9	+ 2.5	91	2†	36	231	32	4.19	+ 1.97	1.38	0	1	10	3	18	se.	Samuel Moore.
Georgia.	Cllessa	0.000	-	00.0		07			204	24		. 1 .00	0.51			10		10		D A Firmer
amondineral Bluff	GilmerFannin	2,020 1,571	21		+ 5.9	87 90	3	33	23† 24†			+ 1.50	2.51 2.53	0	8	13	19	10	w.	R. A. Kimzey. J. M. Clement.
North Carolina.																				
tapass	Mitchell	2,629											9 40							W. J. Woodward.
drewsheville	Cherokee Buncombe	1,800 2,255	32	63.8 59.2	+ 3.9	90 85	5 7	30 35	25 26	42 35	4.86	+ 0.89	2.40	0	9	14	14	3	SW.	J. D. Link. U. S. Weather Bureau.
nners Elk	Avery	3.750	3	54.8		76	3†	27 30	26	39	4.25		1.80	0	8	13	6	12		T. L. Lowe.
owing Rock	Transylvania	4,090 2,230	10	53. 2 59. 5	+ 4.0	79 90	3† 7 2†	29	19 25	30 42	4.08 8.23	+ 5.10	2.04 4.00	0	3 7	18 11	17	7 3	w. n.	Herman S. Deal. W. E. Breese.
yson City	Swain	2,000	23								4.40	+ 1.79	1.96	0	7		9			W. E. Breese, D. K. Collins.
llowheegles Nest	Jackson	2,100 5,050	1	62.2		87	7	28	25	43			2.40		7	15			nw.	F. H. Brown. S. C. Satterthwait.
endersonville	Henderson	2,167	15 21	59.4	+ 3.5	87 75	7	30	25	34 25	6.33	+ 2.24	2. 21 3. 60	0	10	19	7	5 15	nw.	Dr. L. B. Morse.
ot Springs	Macon Madison	1,326	13	64. 0a	+6.7 +7.0	84	2† 1†	36 37	23† 23	34	7.58	+ 2.43	1.19	0	12	15		10	nw.	T. G. Harbison. P. A. Garner.
fferson	Ashe	2,800	10		+ 4.9	91	7	34	25	42	*****	+ 2.20	2.16	0	12	16	4	11	w.	P. A. Garner. Prof. E. J. Johnson. M. L. Church.
urphy	Cherokee	1.614	35 19							7.6	5.16	+ 2.21 + 3.16 + 1.72	2.40	0	10					James C. Midyett.
ock House	Macon	3,100		58.6	+ 2.9 + 6.9	80 86	5 3†	35 29	23 25	28 39	8.01	+ 3.16	4. 21	0	11 15	14	9	8 10	nw.	B. C. Hawkins. Judge J. C. L. Gudger.

TABLE 1.—Climatological data for October, 1911. District No. 3—Continued.

			years.	Temp	perature	, in e	legre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc	
Stations. Virginia. Big Stone Gap	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy of	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
and the latest the same of the	Wise. Montgomery Tazewell Lee Wythe. Russell Wythe. Washington Giles Montgomery Soott	1,540 2,170 3,250 3,243 2,028 2,131 2,028 1,350 4,348 1,773 1,221	20 20 16 8 7 1 15 2 1 2	60.3 52.7 60.2 55.7	+ 5.4 + 4.0 + 3.3 + 2.3	84 82	1 4 1 1 1 7 7 4	32 28 21 33 30 29 26	25 25 26 23 25 26 25 26 25	34 37 45 22 30 43 35	5. 19 5. 74 6. 53 4. 96 4. 61 6. 25 4. 60 6. 84 5. 36 5. 30 3. 00	+ 3.44	1.70 2.19 2.80 1.65 2.00 1.93 1.55 2.17 1.10 2.04 0.72	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 8 13 11 10 9 14 9	13 13 11 12 7 15 19	6 8 4 7 16 1 6 4	12 10 16 12 8 15 6	n. w. w. sw. w. sw. sw.	John W. Fox, sr. Agri. Experiment Sta. C. H. Greever. Henry Nicoll. Miss Alice G. Jewett. R. W. Swain. James M. Graham. Frank M. Barker. Harry E. Dorland. Arthur Roberts. Mrs. L. E. Venable. U. S. Weather Bureau

.17166—11——3

a, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 * Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 3, Ohio Valley.

Stations.	Watershed.														D	ву о	f mor	ith.								1							
outions.	W Breished.	1	2	3	4	5		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	-
New York.									-																								
egany	Allegheny	.80	.02		.75	. 04	.13	. 55 .				. 20				.02		T.	.02									.10	T.			. 67	3
ivaran ii	do		96		95	19	04	78	***			17		****			****		60					.12	.03		****	.08	.02		****	.48	1
			.00	****	. 50	. 40	.02	. 10	***	****	****						****	****		****	***			-					1				
Pennsylvania.																									4								
ро	Ohio Allegheny	.37	.75					1. 41			. 37	. 07				. 32		.90	. 50				.12								.10	.14	
iwin	Allegheny	3.00	. 60	.10	.10			1.38			. 28	.10	. 15			.30		1.80	. 48	****		T.	.14	T.				T.	05		T.	.36	
okville	Allegheny	2.03	1.13		.22	****	.36	. 90	****		.16	. 40	. 20			. 54		. 42	. 68				.13	.02								. 22	N I
ion []	do		2.40		.10	.02		1.00				. 40				. 61			2.00					.10					.02		***	.04	
dwin ver Dam okville ion ysville fluence ys island Dam ys Station	Ohio	.51 T	1.40	28	. 51	T		1.00	10		. 20	50	. 18	T		. 92	.10	1.15	- 58		****		.03	.30	• • • • •			.00	1.		. 10	. 12	
is Island Dam	Ohio		.70		.36	T.		. 73				. 58	.11			.76		. 01	1.90					.02					. 05			. 20)
ry Station	Allegheny	. 41	. 14	.27	10			. 91			. 24	. 09				1.43		. 83	1.28				.12	19				.09	10			.24	1
nklin	do	****	1. 40		. 21	T.	****	.72		****	****	. 34	.13			.96		****	1.79					.10					.09			. 28	
ensboro !!	Monong'h'a.	.04	. 64		.10			.90	.08			. 48	. 30			. 40		T.	1.20					.18				04	. 04		16	.20	1
ensburgenville	You'og'ny	1.25	T.	20	.19		10	. 34		****	. 30	.02	T.			. 93	****	1. 57	. 37	****			. 27	T.	T.			.10	T.			.40	1
ve City	do Allegheny	3, 22	. 02		.23			. 44			.20	.06	. 01			. 01		. 98	. 81				.11					. 02			T.	. 44	1
rs Island Dam []																																	
iana In	Monong'h'a.	. 54	.17	.12	.26			. 27	****		. 59	.01	.0			. 73		.90	.30				. 05	.01				T.	T.		.15	. 15	
and American																																	
k No. 4 ippus	Allegheny	25	36		. 40	****		. 52		****	.34	. 14	.00			1.40		. 54	1.33	.06			.19	.08			1	.08			.17	.12	-
kers Landing [].	do		3.30		. 24			.84				. 32	T.			.30			1.54			****		.12							10	.12	1
sburgh	Alleghony	.38	.11	. 64	T.		. 13	. 22	.01	06	10	.10			. 31	. 54		1.83	71		****	****	. 04				.04	.10	.04	****	. 12	. 46	5
sburg !	Monong'h'a. Allegheny do. Ohio Allegheny do. Ohio Ohio	T,	.82	.04	.30	T.		1.36		. 00		.40	.15	2		. 92			1.10	T.				. 08					.06			.18	3
imore	Ohio	3.00			***	****		1.50			.30	49	.2					1.30	01				.10						15		.10	0.5	5
ingdale II	You'og'ny Allegheny Monong'h'a.	. 51	.81	. 40	. 26	****		1.30			. 46	.36	.10	3		.80	.02	. 30	1.54				. 10	.12					. 07			.19	9
ontown	Monong'h'a.	. 36	1.02	2 . 26				1.80			.30	.10	.27	7		. 43		. 52	. 43				. 20					.11			. 13	.13	5
rrenst Newton[]	Allegheny You'og'ny	18 - 10	3	- 10	. 20	8-6	1 - 250	- 3917				. 12	1			. 10		. (0)	- OU				.30					.10				.15	5
	Tou og my	.01		.01	. 20	.02		. 3.		****			-	1	1		1					****				1	1		1	1	1		
Maryland.			1					1						1																			
r Park	You'og'ny	.00	1.49	. 19				1.10			. 29	. 23				.80		. 50	. 58				. 94									. 05	
ntsville	do	. 50	.90		. 25			. 25			.80	10	.2	5		- 75		. 60	.39		****		. 33	36				T.	01		.05	T.	
		1.2	- 64		.00			1.00			. 20	.10	.0.			. 10		. 10	.00			****	.01	. 00			1		1.01		1.00		1
West Virginia.								-																				1				1	1
eroft	G. Kanawha	.00	5 .72	3 . 55				. 05	. 68		.30	. 54				.09		. 03	1.35				****	. 08								. 05	
kley ns Run	Ohio	1.98	8 1.70	7		****		9 00	*		37				. 60	21		2.50	0.5				42								.12	.39	9
efield	G. Kanawha	. 04	2.70	0 .25	.06			. 54	.21		.61	.14			20	.10		2.05	.12				.38										-
efieldndonville kbannon	Monong'h'a.		1.20	0			*	1.70			20	. 55	.5	3 .70	0	70		1.10	98													.13	3
ro	L. Kanawni	N	. II. 48		. Ivera			. 70	. Ua		1 . 30		.0	5		.3		.80	.32				. 15									. 05	5
tral Station	M'dle Is. C'l		11.20	0				1.70		T.	.36	. 01			. T.	. 21		1.10	. 32													.20	
rleston	I. Kanawha	T	1 9/	0 00	3		1	51	45		5.5	46	T			T.		.03	1, 63													. 05	
Ston #	Sand Creek.	43	3 . 3	5 T.	T.			1.22		T.	. 54				. T.	.00	3	1.83	. 25				.12								. 13	. 05	5
vis II	Monong'h'a	. 1.50	0 : 30	0 .20	.20		. 10	2.00				. 50				. 90		. 50	1 20				1.20	15						. 30		.10	
zabeth []	L. Kanawha Big Sandy.	2.10	0 1. 7	5 .12	2			. 38	. 80	75	. 50	. 38				.75	5	1.10	. 05				.40	. 10									
ins	Monong'h'a	84	41 . 3	5 T.	1 . 21	1		11.77		1	. 47	. 20	.0	6	21	. 39	9	1.15	.04				.31						70				
rmont		. O.	11.0	4 .01	. 02	T.		1.55	1.02		T	- 40				.30			1.10				T.									118	
nville []	Monong'h'a	0	5 .9	4	. 03			1.50	. 03		.26	. 22	0.	3	07	. 6	5	. 54	. 40				. 28	.06							. 12		
en Sulphur Sprgs	G Kanawh	a . (r	711.6	7 T.				. 35	T.		. 52	. 10	0.0	4	35	.06		1.69	1.72				. 37	T.									1
nton [[ntington []	Obio	. 0	4 1.3	4 .06	5			08	. 36		. 44	. 24	1			.1	4	. 14	1.42					.06								. 02	2
wisburg	G. Kanawh	a T.	1.1	7 . 07	7			. 53	. 05	T.	. 59		. 0	7	30	.00	8						. 60									***	
gan st Creek	Guvandotte	2	61.2	6 T				1.80			****	24			. 02	1		.60	T.				. 03								. 06	T.	1
dison	G. Kanawh	8																															
nnington			9 .7	0	. 13			1.62	****		.33	.04	1.1	5	04			1 53	. 47									T.	1		. 00	.06	
rlington rgantown	. Monong'h'a	2	51.00	3 T	66)	1	11.20		1	- 44	1	. 2	2		. 5	5	.58	. 47				.19					T.				.15	5
undsville	Ohio	2	5 .8	0	T.			. 1.38			. 32	.04	.2	9		.4		. 81	. 03				T.	.06			-		2 T.			.08	
w Cumberland w Martinsville	do	8	4 .5	5 .0	T.		****	1.20			33	3	.0	9	Т.		0		.3	5			. 14									. 25	2
ttallburg	G. Kanawh	a	9	4	. T.			83	T.		. 5					.9	7	1.20)				.41										
w Cumberland w Martinsville ttallburg rkersburg	Monong'h io	2	2 .4	6 T.	***		.0	.84		T.	*		*		. 07	.00	1	4.40)													.21	0
																. 5	7 . 02	. 60	1 . 74			1	. 39	. 03	3				. T.		. 14	.09	9
Kens		- L. D.	0 .0	9	. J . Ui			1.01			64		3	4	47	.70	0	1.26	. 34				. 55										
eville nt Pleasant	Guyandotte	0.	1 .6	2 .16	6		****	16	.40		1.19	.4				1.10	0	.04	2.00)													6
wellton	G. Kanawh	a . 1.	5 1.1	9 .00	3 T.			1.00	T.		.1 .85	. 1.	5		.1 .50	1 . 4	51	1.18	1.1				.30										
nceton	G. Kanawh	a 2.5	0 1.5	0 .10				1.00	66	.40	.50	2		1 1	40	9	2	2.75	1 6				. 50	19								110	ó
bertsburg wlesburg	Mononga'la	0	4 .9	4 . 18	8 . 02	. 10)	. 94	. 54			66	0 15	OI .	1	1 24	10	1	1 06	3		1		40)	1		1				. 08	8
an	G Kanawha	1 . 5	3 . 6	5 . 01	1			11 69			-70	0 .01			.1 . 08	. 0	8	1.15	. 29)			. 21	. 01					. T.		. 01	.08	8
Marys ithfield	Fish's Crook	1 .0	5 9	0 . 18	19			1.62	T	T.	. 02	54	0.0	7		. 3	1 .11	1.45	2.00					. 05			1::		T			.13	9
encer	L. Kanawha		. 1.1	7 .10	0			. 31	.57		. 18	.40)			.2	1		1.13					.17								.00	6
ton	G. Kanawha	1	. 1.2	0 T.				. 50	.70		. 40			. 2	0 .33			1.65														T.	- 1
ra Altaion	Mononga la		1 3 4 5								100				000				9 00					40									- 1
lley Fork	do																																
ion lley Fork bester Springs llsburg eston neeling lliamson	Ohio	. 2	0 .7	0 1. 13	T.			1.87	. 15		. 42	00	1		- 36	.8		. 90	30				. 42	****					2		1.1	1.	0
ston II	Mononga'la		. 1,2	6 .00	6	.00	8	1.20	. 69		. 20	.46	T			.4	3		. 96	3												. 16	6
	OL:	1 0	0 0	n m	1 90	et m		14 00	(FF)	1	1	1 191	41 41	PO I	(10)	1 04	N PPS	1	24 04	10		1										1 24	ANI.

TABLE 2 .- Daily precipitation for October, 1911. District No. 3-Continued.

Stations.	Watershad			-	•				15/	3 3					I	ay c	of mo	nth.	- Colon														
Stations.	Watershed.	1	3	8	4	5	6	7	8	0	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Makel
Ohio.												u u						*				-											
mesville	Ohio Muskingum.	. 40	52	12	.02		т.	1.46	T.		. 24	T.	ii		.02	.10		1.08 1.02	.08			T.	.11					T. T.			.08	.06	4
ellefontaine	Great Miami Muskingum.	.49	.16	T.	.02		. 46 T.	. 97			1.50				T.	.33	••••	1.19	.02		• • • •	т.	. 26					.03 T.			. 23	.51	4
diz	Ohio			.70	T.	T.	1.41	T.			. 34	.12			.02	. 49		. 82					. 24					. 05			. 11	.02	4
mbridge mp Dennison	Muskingum. Ohio Muskingum.	. 22	. 49	.75	.20			.72		.05	.70		.20		.10	. 18	T.	1.09	. 10	****			. 21					T.			.16	.14	4
nal Dover nton	Muskingum.	. 97	.40	. 55	.50		T.	. 35			. 35	27	.02	. 30	T.	.16	.02	. 82	••••	••••			.06					.07			.10	. 20	4
rdingtonillicothe	Scioto																																
cinnati	Ohio	. 94	. 28	. 18	.30		.02	. 40		.16	. 67				.27		.09	.08					. 10								.14	.06	
cleville	Scioto	.08	. 30	.10		••••		2.30 1.50	.01		. 38	.05	.15	• • • • •	T.	.35		$\frac{1.31}{1.25}$.35		••••		:10					T.			.10	. 13	
ringtonumbus	Scioto	. 10	. 31	T.			2.00	. 69		T.	. 46				.08		T.	1.17	T.				.17					.01			.12	. 10	
yton (1)yton (2)	Great Miami	. 27	.11	T.	.04		. 61	1.15		.01	. 40				. 10		. 14	. 97					. 22					T.			.21	.11	
yton (2) laware	Scioto	.12	.30		.03		. 95	2.00	T.	. 55	T.	T.		T.	. 56	T.	.01	1.05 1.27					. 26					T.			.17	. 21	
mos	Ohio	.48	. 24	. 05				1.61			. 29	T.	.17		.03	.28		1.63	.13				. 16					. 05			.08	. 05	
nkfort	Scioto	T.	.70		. 10		,	. 45			.60					.10		1.00					. 05								T.	. 15	
nville	Muskingum.	. 15	.07	T.	. 13		T.	2.02		T.	. 93	. 15	.04		.01	.24		1. 29					. 13					.14			.12	. 47	į.
tiot	do	. 18	. 40	T.	T.			1.52			. 85				. 02	.47	т.	1.00				10	.11					. 03			.08	. 15	
en Hill	Muskingum.	1.08	.08	.31	T.		. 17	. 64			.23	.17	T.		T.	. 15		. 93	T.				.08					T.			. 05	.20	1
enville ydenville	Ohio.	.78	. 32			****		2, 55		****	. 35				.36 T.	.18	.17	1.02					. 10		****			.03			. 43	. 18	
sboro	Scioto. Ohio. Scioto. Muskingum. Great Miami . Scioto. Ohio. Muskingum. Scioto. Mahoning. Muskingum. Scioto. Muskingum. Scioto. Ohio. Great Miami Ohio. Great Miami Scioto. Muskingum. Ohio. Great Miami Scioto. Muskingum. Ohio. Muskingum. Ohio Scioto. Muskingum. Ohio Muskingum. Ohio Scioto. Muskingum. Ohio Scioto. Muskingum. Ohio Scioto. Muskingum. Ohio Scioto. Muskingum. Ohio. Scioto.	.34	.16	.09				. 23		.18	1.42					.54		1.66					. 36								. 18	.02	l
ton	Great Miami	.41	.43		.01			1.00			.46				.40	. 20	****	1. 35					.27	****				T:			. 00	. 55	
buck	Scioto	.77	.45	16	. 15			1.14		. 81	.31	. 60		.09	.28	. 22	1. 25						. 21					T.			. 50	.33	
caster	Ohio	.06	.54	T.	T.			3.04		T	. 44		.11		T.	.12		2.07					. 20					T.			. 08	.10	ł
letta	Ohio:	.28	.59	. oi	.02			1.92			T.		.07		.03	. 15		1.71	.03				.20								.10	.10	
ionordton	Scioto	1 25	.41	04			••••	1 20			. 62	11			. 12 T	1.10		1.55					. 25								. 93	.35	ı
igan	do	.36	.23					2.68			.41					.16		1.12					.11					.06	773		. 03	. 05	i
portie	Muskingum.	. 93	.40	.60	T.		Т.	. 70		****	.90	.00			.05	. 48		1.43	.05			.10	.00		****			.01	1.	****	.00	.39 T.	i
v Alexandria v Berlin	Ohio	. 41	. 45	26	05			.85			20		10			1.00		1. 20	15						****	T.		.20			T	T.	
w Waterford	Ohio		. 25		1.57		. 99					.20							1. 97				. 25					T.			.14	. 25	ij.
o State Univ askala				T.	T.		. 48	2.00		T.	. 96				. 10	. 09		1.29				1	00		10000	1	1	0.0		1	9.69	10	u.
bleslo (1)	Ohio			. 25	. 05 T.			.71		T.	. 60		90		.04	.05		1.25					. 09					00			.16	.04	1
ua II	Great Miami	. 55	1.06	. 20				2. 75	10	1	. 55		-3		.37		. 95	. 40					. 56	. 15								. 68	l
tsburgtsmouth []	do	.20	. 08	. 12	.18	T.		2.35	.74	T.	.46	.10			.37	.28	T.	1.05	.88				. 21	.07				T.			. 10	. 12	1
spect []	Scioto															****							****					T			T.	. 14	d
nandoah	do	1.03	. 13	.48	.02		.80	.40			. 35	.09				. 46		1.84					. 22	1	1000	1		T.		1	. 28	. 28	ŝ
ney	Great Minmi	.31	.32		T.	••••	. 17	2, 29		T.	. 48				. 33	.07	. 08	1. 20					. 63	****				1.13			.19	.46	
ingfield	Great Miami	.30	.19	.02	.01		.19	2.59			. 53		90		.12	. 18		1. 44					.20					.02		. 13	.06	. 46	d
acuse	do		.38	T.	****			1. 32			.49		. 20			.21		2.06	.06				.10					1			. 16	. 07	i
tman nandoah ney nerset [[ngfield nmerfield acuse irinan	Great Miami	.53	.30	T.			T.	3, 52		T.	. 46				.08	.16		1.14					T.	.10							T.	. 20	ij
			200	. 49	.01		. 16	. 53		.16	69	.12	T	7	T.	07		1.53	T.		T		.11	T	T.	T			****		T.	. 39	á
verlvynesville	Great Miami	.07	.22	T.	T.			. 82		1	. 58			1	.07	.08	3	.92					. 20		land.						. 19	. 50)
osterungstown	Muskingum.	.88	T.	.71	.03		T.	1.40			.52	. 29	14		. 02								. 06						.00	3	.02	. 52	
esville	Mahoning Muskingum.	T.	. 45	.01			T.	1.31	. 03		. 05	. 45	T.		T.	. 42		.06	, 82				T.	.04				T.	T.		T.	. 20	1
Indiana.																						1											-
lerson	White.	. 33	.47	••••	• • • • • • • • • • • • • • • • • • • •		1.40	1.00									T.								1			1				.03	1
omington	Wabash West Fork,	.14	1.44	.05	.05			. 30		. 05	.12				.14	. 42	T.	.51				. 25								T.	.13	.12	
	White.		1. 20																						1				1		. 12	.27	,
ffton	East Fork,	.77	1.88	.22	.11	.06		. 21		. 12	.20				. 22	1.08		1.32					.25									. 25	
abridge City II	White. Whitewater.	. 05	. 82	.03	.02			2, 57	.01		. 17				. 04	. 25		. 60	.07				.12	.00							T.	. 52	
ambus []	East Fork,				.30			. 16	.01		. 25				. 14	1. 10	.01	. 57	.02				. 15								. 05	.30	1
nersville	White. Whitewater.	. 25	. 60		. 18			1.00									. 40	.50					. 13									. 40	N
wfordsville phi		. 53	. 60	.02	T.		T.	45			45.4				1.00	. 63	T.	.30	.02		T.	. 10	. 20	.00				T.			. 20	.17	i
inence	West Fork,																																
nsville	White.	.91	T.		.08		. 02	. 12	T.	.04					.05	T.	. 03	.02				01	.08										
mersburg	Wabash	. 53	. 60		. 20			. 69		T.					. 27	.09		. 12				T.	29								. 20	.42	à
mland	White.									1	1			1			1		1						-	1	1	1		1	1		
enfield	East Fork, White.	. 47	. 21		. 05			1.88		T.					-57		T.	.43							1	1				1	1		
ensburg	do	1.00	. 45		.20		. 20	.38								.60							. 20								. 15	.20	1
ntingburgntington	do						. 000	1 0		1 4					. 55	- 05	. 20	.50				05	- 16					1	0		35	. 05	5
lianapolis	West Fork,	.77	. 22	T.	. 18		1.30	.10		. 06					. 58		. 30	.00				01	.08								32		1
ersonville	Obio	1. 16	.08	.09	.01		. 20 T.	.01		. 33	.33				. 18	.01	.10	.78				. T.	. 13								07		
lyville	Wabash	1 . 81	. 10	1		1	. 20	OF		T.	10000				1 .50		. 0	1 . 24			.1	8 . 60	.49				- Vais		alee-		31	. 10 T.	á

Table 2.—Daily precipitation for October, 1911. District No. 3—Continued.

Stations.	Watershed.														1)ay (of mo	nth.				-							,				-
Stations.	W merapour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
diana-Contd.																																	
	Wabash	. 65			. 10		.05	.07			****				.41	.03	.09	. 18			. 05	T.	. 65	T.		••••		. 02			.33		
gansport []	Whitewater. Wabash	. 17	1.02	.01	. 10			. 67			.20	.01	****	.17		. 50		. 64				. 16	. 34					.05			. 11	.27	4.
dison	Ohio	. 96	3.74		. 03			. 12		10	60				99	KA	.04	1.50					. 31								.10	. 12	8.
rengo	Wabash	1.00	2. 16		. 07		.10	.75		.04	.10				.23	.40	. 30	. 60					. 11								.25	. 05	4.
	East Fork,						T.	. 93		. 05	. 24				. 14	.11		. 47					. 15		****			T.			.27	. 26	3.
nticello []	White. Wabash	. 20			.80	T.	T.	.36							T.	. 56		. 60	T.			. 30	. 81					. 50			.06		
ores Hill	Ohio	. 53	1. 15	.09				.32	****	. 01	. 42	****			.17	. 29	. 33	1.08					. 63								.16		
ant Vernon II	East Fork,	1, 29	.42		.03		****	.16	.01	. ii	.09	****			.02	.02	.08	.74		****			. 10								.20		
	White.					. 25	1000						100	-	-								1								40		2
mond	Wabash Whitewater.	1.05		.06			. 91	1.39		.07 T.	.14			. 20	.25 .19 .15 .08 .05		. 26	. 62				.14	. 18								.44	.06	3 5
hester	Wabash	1.20	. 35	.02	. 20	T.	. 05	. 40		T.	.01				. 15	. 34	T.				T.	.36	. 27	••••				.09			. 14	. 18	3 3
	Ohio			****					.01	.08	.09	****		****	.08	.37	. 10	1.01		****	Т.	. 10	.00	****	****						.06	.06	
monia	Wabash																																
mtaburg	Ohio East Fork,	. 95		T.	. 10		****	. 10		. 13 T.	. 20	****	****	****	.33	. 25	. 10	1. 14	Т.		****		. 13					1.	1.		.12		
	White.												1		1				- 1											1			1
nour	do	2.88	.01		. 03		. 13	. 84			. 17		****		.33	.21		. 76		****			. 18		****	****	****	.14			.21	. 22	2 3
byville		*	1.99	. 05	. 18			. 13			. 09				25			84				-	. 12				1			1		.40	3 4
e Haute	Wabash		.70		.04	****	.18	.52		.01					T.	.03	.01	. 24			.17	. 16	. 10	****	****	****	****			****	.08	.04	
зу	Ohio	. 90	3.10	. 10	. 10			. 10		1.35	T.				35	1.00		1.65					. 50								. 05		. 1
ennes	Wabash West Fork,	T.	1. 10	T. T.	. 40			. 50		T.	. 05				.10	T.	T.	. 05	T.				.20		****				Т.		62	. 35	5 2
	White.						****		1997	.04			****	****							****	****						100			-		
testown	do		1.28		. 17	T.	.04	.94	T.	.01					T.	. 55	06	1. 17	T.		- 04	15	. 13	****	****	****		T.			. 13	. 19	
ona Lake thington	Wabash West Fork,			. 05	. 15	1.	.04		T.	.01		****	****	****	. 19	. 13	.00	. 35			.01	. 10									.39	T.	
	White.																							-									-
Illinois.														1																			
on	Wabash	. 85	. 03		.06			. 16							.09		. 20					. 23			****								. 2
ni	do	1. 11	.36		.02		. 30	T.							.05		. 66				. 25	. 59	.12								. 08		
ville	do	.48	. 28		. 04		.31	.07		T.					.09 T.	****	. 13	. 29			. 53	. 63	. 47									.02	
ality	Ohio Wabash	1. 30	T.		. 25			.35	• • • • •	.04			****	T.	.07	. 18	. 20	.21	****		••••	.07	.00								.40	T.	
•	do	00	20		90			54	T	0.4				1	24	August 1	T					. 22	. 30					T.			T.	.07	. 3
peston	Ohio Wabash	.23	- 14	.01	.20	T	.02	. 85	****		****				.44		.61	. 27		****	. 24	.99	. 47					.02			. 28		
eansboro	Ohio		.80																				25			1	Berei			1	. 18		
trose	Wabash	T.	T. 74		. 24		.59	. 55	T.		****		****		. 10		.21	. 15	••••		Т.	.44	. 25					T.	1.	1.	. 15		. 4
nt Carmel II	do	T.	1.26	. 04	. 12			. 20	T.		. 04				.10	. 30	T	.04					. 18								. 04		
Burnside	Ohio	1.72	47		25		30	.20	T.	T.	****	****	****		.08		.02	****	1.	****		. 36	. 21			****		T.			12		
stine	do,	1.20	1.60		. 10			. 65		. 02						.22		.02				.01	. 21					T.	T.		. 15	. 01	1
s []	do	. 10	- 40				20	.70						****		. 10	1 10	. 10		****	60	86	. 15								. 10		
toul	do	. 65		. 03	. 25		.06	. 05								T.	. 25	. 18	.02		. 15	.71	.48								. 25	. 03	
inson	do	71	51		95		.72	T.	40					. 16	.07	.06		.10				. 32 T	.21	****	****			T.		. 12	. 05	T.	-
cola	do																																
ana	do	. 95	.11		.05		.02	.01							T.		.45				.30	.78	. 16		****			T.		. 20			. 3
Kentucky.		*										1	1					,											1				
	Combadani	m	00		m			m	T	1 90	000				m		19	RE					T.				1				Т.	. 08	8
hahorage	Cumberland Ohio	1.25	. 05		T.			0.8		33	. 56			110	05			.80					. 54								. 10		
dstown II	Salt		. 53	.06	T.	.12		T.	. 49		. 62	T.			T.	. 30	. 04	. 34	.13				. 30	T.					T.			.05	2
ttyville	Kentucky Green		1.30		. 12			. 23	. 84		.20	. 02				.20	.70	. 46	.08				.10										
88	Kentucky	. 38	1.43	.03	T.			.90		. 34	.61	70			.09	. 61	. 15	.85					.18								T.	.11	1
vling Green	Green Cumberland		. 70	.07		. 40		T.	.19		.89	.14	.02			.06		. 36	. 40		. 10			T.								T.	
oun	Cumberland Green	1.49			. 34				1 . 30	. 06					06	. 10	. 00	+ 136					.06								. 03	.08	8
ettsburg []	Big Sandy Green		1.70	-04				.12	. 27														T.										-
ington []	do	. 32	. 22		.12			.10	.05	.80	.64				.05		. 05	. 65					. 15									.08	8
ank [[Cumberland Licking		2.80	.13	.01			. 28	.15		.87	.19				.50		. 30	. 55				. 16	. 02								T.	0
mers	do	. 55	4, 50	. 25		1		. 80		T.	. 25		1	1 23		79		. 263					. 23									T.	
nkfort !!	Kentucky	****	. 95	.04	.16			14 T		95	.3.	.04			T	.67	T.	1.00					.03	T.	****						T.	.03	
ensburg	do		.80			.20			. 10		. 500	. 40						. 10	. 50				. 06	. 06								.00	5
Bridge II	Kentucky		1.78	.92		.09		.05	. 55		. 46	. 10			1	1 . 10	- 01	. 21	. 46			2000	. 21	.06		****							
ngton	Cumberland Ohio	1.38	1.		T.			. 48		.38	99		1		T.	1.11	.10	1. 44					.17								. T.		
chfield	Green	. 79			. 35			.57		*	.74				T.	. 29		. 83														.11	. 8
ington	Kentucky Salt	1.07	. 09		T. 02			. 60		30	.59	****			. 27 T.		. 02	.90				****	. 09								. T.		-1
ettoisville	Ohio	1.05	. 08	.04	. 01			.01		. 49	. 13				. 14	.01	.11	. 62				.03	. 08								. 00	. 04	4
ionsville	do	.18	T.	09	. 22	03		. 72	.16	T.		.06			. 27 T. . 14 T.	. 24	. 22	.16	.50			T.	T	. 25		****					T.	.10	0
dlesboro	Cumberland	.08	.65	. 53				1		. 01	3.60				. 03		.37	1.33					. 02					.07	7				
int Sterling	Licking		2. 95	.57	.02	T.		T.	. 60		. 34	. 18			T.	. 24		. 34	. 62												T.	.04	2
nsboro	do		T.		.04	.14		. 24	.14	T.	1 10	1	1.000	1	1	1	2000	. 331		1000			. 28								04	. 20	0
itsville	Big Sandy					10550													1 00						1	1	1	1	1		1000	1.	
ATTRICK DE	Kentucky	T.	2. 20	. 17	T.	T		.05	. 46		.70	. 10				.12	T.	. 50	.36			****	.14	. 05	. 16							T.	. 1
mond II						1		90	24		70	T.		1	1	1 55		. 45	. 10	1			25		1			1				. 04	5
oville	Salt Licking Kentucky Salt		. 60		. 20	. 15		. 20			1000		1		****	1.00							. 20					(P)			14		

TABLE 2.—Daily precipitation for October, 1911. District No. 3—Continued.

Stations.	Watershed.				. 115				- 1			Den I			I)ay (f mo	nth.												1211			
Stations.	Wateration.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Potel
Kentucky-Contd.																									1						1	7	-
aylorsville	Salt Cumberland	.80	.77	.05	.11			. 16		.14	. 39	.30			.11	. 03		. 60	.80	.03			. 31								. 07		3.
/illiamstown	Cumberland Licking		3.75	.24	. 05			. 17	.15		. 81	. 01				. 33	.03	. 10	. 56				T.										6.
Tennessee.				213				1-1								. 3	245		- 1		-				1	1							1
shwoodenton.	Tennessee		. 10						0.03	T	0.05	1.55					1.00	1.85					. 05				T.	.05				T.	
irds's Bridge	do		. 03	. 15	1.15	. 03			. 02		.71	. 43						.10	1.79				.22	.05									3.
yrdstown	Cumberland		1.04							1.00	1 25	.00					. 53	.15	15			.10	14									.02	2
irds' Bridge luff City yrdstown urthage dar Hill blina unter Point uarleston arksylle	do	T.	. 40	.01	.50			. 03		. 03	. 55	.09			T.		T.	. 55			T.	. 30	.13							. 02	T.	.04	1 2
enter Point	Tennessee				.81			T.		.73	. 23	.16					.28	. 50	. 30			T.	.12	.00					T.			T.	2
narieston	do		.04	. 24		. 08				.31	.50	.78	.06				1.71	3. 30 1. 42	. 56			.02					.06				T.	. 46	5
arksville	Cumberland		.80	. 03	. 31				T.	.07	1.24	. 66					. 41		.53												T.		1 2
inton	do		02	.74	T					05	. 64	.80						. 40	1.30								04	.02				. 03	3
ickson	Cumberiand				. 35	d		1		. 18		. 64					. 65	. 43		P													2
overunlap	Tennessee	.02								. 15	1.75	.04					1.00											. 05				.07	4
izabethton []asmus	Cumberland	T.	.05	.73	T.			.04	T.	.56	1.18	.02					.52	.87	1.50			T.	.09	. 46			. 03				T.		14
anklin	do		T.						T.	1.28	. 41						.17	. 38				Т.	. 19									. 22	2 9
all's Hill	Tennessee		T.	. 24	••••	••••		T.	T.	T.	1.50	.11					.32	2.55						. 18				. 10				T.	
ohenwald	do			. 02		****		T.	0000	1.45	.72						1.53	. 41					. 10										
fferson Cityhnson City	do		.21	.50	.03						1.84							1.50					.00	. 19				. 19				****	1
hnson City	do	T.		. 33	.13				T.	. 20	. 96						. 62	. 36	.97				.14								.01	T.	1 2
ingston	do	.08	.01	.00		****		T.	J. 5	. 29	2.05	1.11 T.			T.		.16	2.60 1.00	. 30				T.		****		.08	. 05				.11	1 3
banon	Cumberland Tennessee	T.	T.		. 10			T.	T.	1.30	. 86	.11					T.	. 46				T.	. 25					T.			T.	. 25	5) 3
vingston	Cumberland Tennessee										1. 10	1. 15					. 40	1.10	.50									20					1 3
nnville	do				T.			T.	T.	. 90	1.46						. 46	. 50				.06										T.	12
oMinnville	Cumberland		22	0.2	T		1	.03	T.	. 22	1.11	. 92	. 02				. 52	.60	. 68			****	.11									.01	20.00
arrevilla	Tonnoccoo	50	15		1000			.17	.02		1.65	.05				.14	Т.	$1.30 \\ 1.29$.41				T.					.10	. 4
ashville	Cumberland Tennessee Cumberland		T.		T.	••••		11.		1.13	- 50	.78					.06		1.27			T.	.14									.09	3
ewport	Cumberland Tennessee		10	.50	т.												.20	.94	.30		T.	T.	96		****							T.	04 04
newood	do							T.		. 40	1. 20	0.5					.94	.33															2
ogersville	do	.02	. 52	. 60		.02					.76	.64							1.18				.08										
vannah	Cumberland Tennessee				Т.																							Т.				-12	
vierville	do	.05	.04	.92	••••					*	1.10	2.05						1.50 2.34					.05			****					****	.05	14
waneeoartaoringville	Cumberland		T.		.50			. 05	T.	. 25	1.40	T.					.50		.01				.05			****		T.				T.	1 2
zewell	do	.35	. 27					T.			. 93	. 58					. 68	.57	. 92					.08				. 24			T	T.	
ullahoma	Cumberland Tennessee		.10	.48							1.20	.50						.99	. 41			****	.10			****	****				783		3 2
ildersville	do				.15			Т.		. 21		.05					1.15 1.65	. 27					.17			****				****			2
	Cumberland Tennessee		.09		T.					.80	1.35					****	.83											T.		****		.07	3
Alabama,					1																										1		1
	Tennessee	. 15									1.17	. 55					.16	2,00	. 26									T.			1.1		4
ridgeport ecatur orence																	. 26	1.85	.23 T				.02	.05				T.	T.				4
untersville	do	.32							.70		. 23	.20					.04	3.30	.10													.04	4
untersville adison iverton	do		.15							T.	1.01	. 05					1.06	.70					.03				70				11:	T.	53
ottsboro		- 28							, U3		, UD	. UO					1. 40	1.20													1000	T.	4
Georgia.																															1		
	Tennessee								.06	. 41	1.03	. 31						2.51				T.	.08				.02	. 23			1.		4
iamondineral Bluff	do		.08	T.							1.00						.05	2.53									T.	T.			-	T.	3
North Carolina.																			-						-								
tapass	Tennessee																	2 40															1-
heville	do	.32	.45	T.				.03	T.	.04	.98	. 23					.02	2.14					.35		****		T.	.01	T.				
owing Rock	G. Kanawha	••••		.65				.10		. 60	.47	.05						1.80 2.04				****	2.00						10				
tapass	Tennessee	.06		.04						T.	2.61	.17					.97	4.00					1.31				.04				T.	T.	8
illowhee	do	.18	T.	T.					T.	.02	.98	.10						2.40					. 24				T.	.02				1	3
ndersonville	do	0.50	×.	.02		Com			. 05	. 13	2. 21	.04						2.04	.09				1.68					.05	.02			2.0	
ighlands	do	.16	****	.03							2.63	.06					****	3.60					1.00	****	****		****	08	****			.10	. 3
ot Springs. fferson. arshall urphy oek House /aynesville	G. Kanawha Tennessee	.07	.00	.04	.01			.22	. 68	.04	.84	.03						2.16					.15					.04	****	::1			4
urphy !	do	.34		.70	.10					.01	1.00	.50						1.00	1.40					.10					.01			.10	5

TABLE 2 .- Daily precipitation for October, 1911. District No. 3-Continued.

Virginia. Big Stone Gap. Tennessee. 10 .22 .97 T	Challens.	Waterbad														, 1	Day	of me	onth.														
Signature Sign	Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Lacksburg Kanawha .05 1.75 .03 .30 .10 .42 .06 .07 .12 .219 .03 .62	Virginia.																													-			
1						T.			. 25							T.	. 20		1.70					. 22					.10				
anhoe do l. 22 10 T	irks Garden		.00	1.75 2.80			****	****	.30	. 10						.07						****		. 62					T.				
Knob		do	1.99	1.00		. 03			.90	30	05						.15		1.93	2 00	·m			. 25	30				.15	••••			
Addita Tennessee	Knob	do	.17						. 05			1.56	. 03						1.65	.03				.18					.15		T.		
mtain Lake Kanawha 1.03 .90			T.	1. 23	T.			.04		1	2000						1.40						****	.50	08				T.				T.
iford Tannessee 1.10 .70	mtain Lake	Kanawha		.90							.13	. 60		.10			. 20	T.	1.10			T.					T.						
ers Ferry	dford			1.10	.70	20				.24	.12						.10	T.					****		.52					10			

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 3, Ohio Valley.

	-	Pennsy	ylvank	٠.							W	est Vir	ginia.	Tall di						,				Ohi	io.	4.		
Date.	Green	aville.	Pitts	burgh.	Charl	eston.	Elki	horn.	Elk	rins.	Glen	ville.	Hun		Mor		Parl		Whing		Canto	on.§§	Cincu	nnati,	Colui	nbus	Dayte	on.§§
nge.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.
1 2 3 4 5	62 60 64 78 58	47 46 37 54 45	72 58 63 77 56	50 52 46 56 47	85 80 78 80 77	56 65 58 64 52	79 79 71 78 80	53 55 50 54 53	75 67 66 77 61	47 56 52 60 45	83 73 78 81 75	50 53 58 61 46	82 74 76 78 79	53 60 58 58 58	76 70 65 78 70	48 53 52 56 46	83 70 73 79 62	54 56 55 60 50	69 59 78 81 60	50 50 48 50 46	71 61 70 78 67	50 45 42 56 45	80 71 83 77 65	59 58 56 58 51	76 63 69 76 59	53 53 47 53 46	76 67 75 75 62	57 55 51 54 46
6 7 8 9 10	70 57 66 70 66	43 35 29 30 43	75 67 62 67 65	46 48 40 43 54	81 80 67 67 68	48 53 53 55 60	79 76 70 70 69	50 60 50 54 60	80 76 60 69 64	44 47 46 52 52	82 72 62 71 68	45 49 49 55 56	79 71 62 66 67	48 50 51 51 51	79 73 62 66 65	44 49 45 45 54	81 76 60 67 64	49 50 49 56 58	79 54 68 68 64	46 50 43 42 46	76 69 64 63 57	45 45 36 36 49	84 73 60 66 67	51 50 47 55 57	82 66 61 63 62	48 45 43 52 54	83 70 60 62 66	48 47 44 49 56
11 12 13 14	62 59 62 68 73	52 46 34 37 45	66 60 63 67 66	53 50 49 45 54	73 72 65 66 71	60 51 48 48 53	70 66 67 73 75	54 51 42 44 50	70 59 66 66 67	50 48 45 42 46	74 66 67 71 71	57 52 44 49 51	70 65 62 65 70	60 51 49 48 50	69 67 62 70 69	54 49 50 43 53	71 64 60 67 69	55 52 48 46 50	72 71 66 69 72	52 49 45 43 44	64 63 64 67 67	49 44 39 37 48	72 69 65 68 68	56 52 50 48 52	69 64 63 61 65	50° 46° 48° 48° 53°	70 66 59 64 67	54 47 46 44 52
16 17 18 19 20	74 62 64 64 69	43 51 40 33 34	71 66 60 63 66	50 52 52 43 45	78 76 65 66 70	53 59 53 47 47	77 74 70 56 70	51 55 50 40 44	77 64 58 67 78	43 54 47 44 42	80 68 66 68 75	46 58 54 44 51	76 65 63 64 66	53 54 54 47 48	78 68 63 66 74	44 60 52 39 42	77 69 64 67 70	46 56 48 43 43	76 66 68 66 70	49 49 53 44 44	73 64 66 70 73	42 54 44 36 39	80 67 65 69 70	57 55 50 45 50	76 68 62 68 69	52 54 48 46 48	80 67 65 66 70	57 53 47 45 45
21 22 23 24 25	73 64 57 55 64	44 43 37 30 29	73 64 56 55 64	57 46 42 38 39	73 73 60 60 67	55 49 41 37 35	72 70 68 58 65	45 47 38 31 35	73 62 60 55 68	48 42 39 31 27	64 58 67 70 60	49 33 33 49 40	70 56 59 60 63	49 55 40 36 35	74 64 57 56 65	51 50 41 34 37	74 61 59 54 65	56 46 42 36 33	77 64 62 61 67	45 45 41 33 34	64 62 57 56 65	44 43 36 32 32	65 57 57 56 66	53 41 38 36 37	64 57 54 53 63	50 39 37 36 40	58 58 53 55 62	53 40 38 34 39
26 27 28 29 30	55 44 48 54 56 60	30 34 26 22 32 42	61 47 44 52 52 52 58	41 38 35 29 36 48	66 66 53 56 62 64	40 42 42 44 44 42 51	67 65 61 69 71 66	35 41 37 39 38 50	66 60 45 56 64 66	31 32 38 34 32 46	68 60 49 55 61 63	35 36 41 42 34 47	63 54 55 55 58 60	35 35 41 42 40 41	63 55 49 55 56 61	37 36 35 35 35 35 32	63 50 46 56 53 62	38 39 40 38 35 49	61 48 48 58 53 59	34 40 35 29 29 33	68 53 52 57 51 65	38 32 32 27 33 38	64 49 49 57 54 56	43 37 35 37 44 49	60 44 46 53 48 57	42 34 32 33 39 45	60 46 46 53 51 54	41 34 32 32 42 45
Mns	62.5	38.5	62.4	45.9	69.8	50.4	70.4	47.3	65. 9	43.9	68.6	47.3	66. 2	48. 4	66.0	45. 2	65. 7	47.6	65.6	43. 3	64.2	40.9	66.1	48.6	62.6	45. 6	63. 4	46.0
	1	Ol	nio.							India	ana.		•						111			1	Kent	ucky.				
Date.	Mar	ion.	Wave	erly.§§	Butle	rville.	Evan	sville.		anap- lis.	Kok	omo.	Rock	ville.	Wort	hing- n.	Phile	o, III.	Bea ville			vling en.§§		ling- 1.§§		ens- g.§§	Lext	ngton
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	72 72 68 73 73	53 53 44 62 40	86 72 74 80 69	49 58 54 65 43	87 81 88 80 68	66 61 59 65 43	83 78 88 76 72	66 68 66 61 53	75 68 83 76 63	58 57 56 53 48	74 72 82 77 64	57 53 48 61 39	72 67 82 76 68	59 56 56 61 45	77 70 85 78 68	60 63 63 64 46	72 67 84 76 65	36 56 55 55 42	88 85 90 82 77	53 58 60 60 44	90 92 94 81 80	61 67 68 67 48	92 89 93 80 82	60 68 70 70 47	87 86 90 76 76	54 65 56 65 45	83 78 85 76 65	60 60 50 58 51
6 7 8 9 10	82 75 69 63 64	46 48 37 43 52	83 79 60 67 64	45 52 48 47 58	86 78 58 67 67	52 54 46 54 55	88 72 58 60 72	57 52 51 52 56	84 71 58 60 66	52 47 43 51 55	84 73 61 61 67	49 44 39 43 52	84 71 57 59 67	54 47 42 50 52	87 82 57 60 70	54 50 48 53 53	84 74 59 60 67	54 48 42 47 46	88 75 65 68 67	45 47 48 50 57	92 79 77 63 67	49 52 52 51 51 53	92 63 63 67 76	53 60 53 48 53	83 85 61 64 64	45 44 50 50 54	84 75 59 65 64	52 51 49 55 50
11 12 13 14 15	69 67 68 68 71	46 42 43 40 48	73 68 59 61 72	55 45 48 43 57	74 70 70 71 67	49 44 42 56 44	76 71 69 76 83	56 54 51 55 60	69 69 66 65 65	53 49 50 52 48	68 69 63 63 69	44 40 40 43 39	69 69 67 70 67	49 46 48 53 44	73 71 69 71 68	50 46 45 53 46	73 75 68 74 69	45 45 42 54 39	84 72 75 67 76	58 47 41 44 49	79 74 72 82 85	56 55 46 50 55	81 79 77 82 89	53 51 43 45 55	77 70 72 76 84	56 46 42 42 42 49	71 66 66 69 70	58 52 48 51 61
16 17 18 19	80 68 68 69 69	46 55 43 49 42	80 76 68 70 71	48 57 49 41 44	80 72 68 70 72	56 55 41 41 40	78 64 70 72 70	62 55 49 49 49	78 64 66 68 64	58 51 44 48 47	79 72 67 70 61	51 52 34 39 45	77 70 67 68 55	59 51 40 46 46	79 72 68 69 68	58 54 43 42 47	76 63 67 68 54	58 50 38 42 46	83 65 73 72 79	55 57 50 42 43	82 83 75 75 75 75	58 57 45 45 41	81 65 74 77 79	65 57 45 42 46	82 64 69 75 79	53 55 47 38 38	79 64 -63 69 69	59 54 49 48 50
21 22 23 24 25	60 58 53 59 65	52 43 36 30 41	73 61 60 58 67	48 45 35 29 30	67 61 56 60 66	50 45 38 28 36	55 53 58 60 65	41 38 42 38 43	52 48 52 56 62	47 39 40 35 41	51 48 50 57 61	44 37 36 27 31	48 50 51 57 62	44 37 38 31 36	56 52 55 59 64	48 39 36 28 35	48 51 51 57 64	38 37 35 27 31	80 56 67 64 77	45 49 33 28 29	76 55 63 66 70	42 45 31 31 32	66 58 63 67 76	48 36 34 32 34	74 68 64 64 72	30 45 30 28 27	72 58 56 53 65	51 39 36 38 40
26 27 28	60 53 50 54	35 36 29 25	67 51 49 58 50 61	34 36 33 29 33 33	66 52 51 58 56 55	29 40 32 33 40 44	71 51 51 56 64 54	45 39 39 44 48 42	57 46 48 53 51	41 35 34 32 43 41	57 53 49 52 47 49	37 36 38 24 32 44	56 48 49 55 48 -51	42 33 32 30 42 45	65 55 50 55 53 53	37 39 31 33 45 46	57 48 48 53 47 53	40 34 30 26 42 41	76 68 54 66 67 60	32 35 37 35 36 38	72 59 60 63 74 61	38 38 36 38 42 48	77 70 57 59 73 50	36 38 37 35 43 50	73 58 60	29 32 34 31	68 54 49 57	46 36 35 39 45 47

Mns. 65.2 43.0 67.3 44.7 68.5 46.4 68.3 51.0 63.0 46.7 63.5 41.9 63.1 45.6 66.4 46.9 63.6 43.3 73.1 45.3 74.7 48.3 74.1 48.6 72.5 43.6 66.8

TABLE 3.—Maximum and minimum temperatures for October, 1911. District No. 3-Continued.

		Kent	icky.				*				1	l'ennes	800.											4519	Vin	inia.	
Louis	rville.	Mays	rille.§§							Knos	ville.	Nash	ville.	Palm	etto.	Spa	rta.									wy vil	
Mex.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
70 89	64 62 61 61 53	86 76 87 82 72	50 63 56 57 46	89 88 90 87 78	60 59 69 68 49	89 89 92 90 85	68 72 69 70 64	87 89 87 85 77	56 65 65 63 52	86 84 90 87 80	64 70 68 68 58	87 89 90 83 80	67 74 73 66 58	90 91 93 89 85	68 73 70 71 54	87 87 89 86 80	64 69 69 67 54	88 89 92 90 88	68 71 65 63 67	92 92 97 100 89	68 69 65 66 64	79 78 70 83 77	58 61 59 60 54	81 76 80 80 75	58 65 67 66 51	78 70 64 77 69	54 62 54 54
87 77 57	54 55 51 56 57	89 71 64 73 67	46 46 48 50 54	90 82 86 82 78	50 59 54 61 61	90 90 82 66 67	61 68 64 61 63	87 83 77 72 60	51 61 59 56 60	87 88 80 76 66	54 68 66 66 63	88 77 65 63 66	58 60 56 58 60	92 86 67 68 70	60 66 59 57 61	88 85 67 71 67	54 64 60 61 62	91 81 64 64 69	59 60 57 57 60	93 92 80 80 73	63 63 61 60 63	78 85 68 69 64	49 57 51 51 51	77 80 70 70 69	48 58 58 60 63	75 79 55 68 61	41 54 42 55
69	58 53 50 53 59	76 71 72 70 72	57 49 46 46 47	74 71 73 86 85	56 48 46 48 51	75 76 73 77 84	62 60 55 57 56	75 70 73 74 75	61 55 42 46 54	74 70 72 74 81	63 54 50 54 60	76 75 73 78 84	63 58 52 55 61	78 77 76 80 85	64 59 47 53 58	74 72 75 78 82	62 59 45 53 53	77 75 75 79 83	65 65 45 49 59	77 76 77 79 81	62 62 52 52 52 55	75 66 68 68 77	60 49 42 50 48	70 65 60 70 73	68 54 46 48 54	74 63 70 69	51 41 41 41 51
81 66 67	57 55 51 46 52	85 65 70 74 75	50 51 49 43 42	86 84 76 81 79	49 45 50 49 53	75 66 69 69 72	62 57 54 48 52	82 66 61 65 75	53 60 54 41 42	81 64 64 68 72	58 58 51 47 51	76 67 69 72 74	63 57 51 46 51	76 68 69 74 75	59 57 50 43 50	73 70 69 71 73	59 56 51 44 49	75 69 69 68 70	61 56 46 42 58	73 66 68 68 72	56 60 54 47 47	75 67 60 68 68	51 52 46 40 45	76 70 60 66 70	55 58 53 43 43	76 62 59 72 69	5 5 4 3 4
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49 50	44 40 38 44 47 50	71 52 55 62 60 59	34 37 37 36 38 39	84 87 86 87 68 56	37 39 47 43 46 33	64 69 67 71 73 64	47 54 50 47 50 56	73 63 68 66 72 64	35 35 43 43 45 47	69 68 65 66 71 61	39 52 47 42 48 53	72 64 61 66 74 66	39 47 42 40 47 47	76 70 60 72 76 61	37 52 47 36 45 55	72 69 59 67 75 66	36 54 45 38 44 44	72 73 71 70 75 60	33 42 43 36 47 47	71 70 62 69 71 67	39 40 45 42 40 41	70 60 58 65 69 61	35 49 47 47 47 42 52	69 64 63 62 68 64	35 51 53 43 42 49	69 62 50 62 68 65	3 4 4 4 3 5
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a, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 § Data are from standard instruments not supplied by the U. S. Weather Bureau.
 §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT No. 4, THE LAKE REGION.

Prof. HENRY J. Cox, District Editor.

GENERAL SUMMARY.

The rapid movement of storm areas prominent in affecting the weather conditions in the district during the month of September, 1911, was not so marked in October, and, as a consequence, the changes in temperature were nc's so frequent; and, aside from the cold weather in the western Lake Superior region, the mean temperature for the month was not much below the normal.

Exceptionally heavy rains occurred over a considerable area, principally in the drainage basins of Lakes Michigan, Huron, and western Erie, and although in other sections the total rainfall was, as a rule, below the monthly normal, there was much cloudiness and a great deficiency in sunshine, except in the eastern and extreme northwestern portions—in strong contrast with the pleasant sunshiny October of 1910, when the so-called Indian summer was experienced at its best over the greater portion of the

A much larger number of thunderstorms than usual in October occurred, especially in the portion of the district reaching from Illinois eastward over Indiana to southern lower Michigan and northwestern Ohio. There were, however, only a few instances of destructive storms.

While killing frost had been noted in September in western upper Michigan and the Lake Champlain watershed, and was observed in a few interior counties of lower Michigan on October 8, it occurred in other sections from October 22 to 28, from two to three weeks later than usual, except that at a few points along the southeastern shore of Lake Michigan it had not occurred by the end of the month.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

		mal.	itation	mal.	on in	ses).	Nur	nber	ofd	ays.	
Portions of States lying within Dis- trict No. 4.	Mean temperature.	Departure from normal	Mean precipita (inches).	Departure from normal.	Greatest precipitation in 24 hours (inches).	Mean snowfall (inches)	With 0.1 or more (fach).	Clear.	Partly cloudy.	Cloudy.	Prevailing direction
Minnesota. Wisconsin Illinois Indiana. Upper Michigan Lower Michigan Ohio. Pennsylvania. New York	41. 4 47. 0 53. 3 51. 4 44. 1 48. 2 51. 6 51. 5 48. 2 46. 1	-2.1 -1.3 +0.1 -2.2 -0.8 -1.3 -0.9 -1.6 -0.5 -1.0	1.10 4.67 3.79 3.98 3.13 4.98 4.98 3.47 2.98 3.75	-1.84 +2.66 +1.24 +1.66 +0.43 +2.33 +2.60 -0.33 -0.33 +1.09	0.54 2.51 1.25 1.53 2.62 2.40 2.70 1.20 2.31 2.05	T. 0.1 T. T. 0.4 0.1 T. 0	5 10 12 13 10 11 12 13 11 11	14 10 7 10 9 9 11 5 10	8 8 9 7 8 8 8 10 11 11	9 13 15 14 14 14 12 16 10	W. nw. w. ne. w. sw. sw. s. w.

TEMPERATURE.

In the Keweenaw Peninsula and the eastern portion of upper Michigan, the northern portion of lower Michigan, almost generally in the Lake Michigan Basin, at a few points along the northern frontier of New York and in the eastern portion of the Vermont section, the mean temperature of the month was a fraction of a degree above the seasonal normal, while in other portions of the district there was a deficiency, the departage being greatest in Minnesota and Indiana where it exceeded 2°. In fact, the mean in Minnesota was the lowest on record for October in the postion of the distriction of the distriction.

October in the portion of the district As a rule the temperature was during the most of the first and the during the second. The period of weather of the first decade began September. The greatest cold oc week of the month when minim-either down to freezing and below

cause killing frosts at nearly all stations.

At no time was the heat excessive for the season of the year, as shown by the departures from the daily mean temperatures, the excess in only two instances exceeding 15°. The dates of highest temperature differed considerably in the various portions of the district, but were confined to the period from the 3d to the 12th.

The absolute range in temperature was 76° from a maximum of 82° at Hammond, Itsl., on the 3d, and at

Berne, Ind., and several points in Ohio on the 6th to a minimum of 6° at Stephens Mine, Junn., on the 31st.

in that State. below the normal

decades and above comparatively cool the closing days of rred during the last r temperatures were or sufficiently low to

PRECIPITATION

There was less than the usual amount of precipitation in the Lake Superior region, especially in the western and central portions, where the deficiency exceeded 1 inch. There was a deficiency also in the Pennsylvania section, the greater portion of the New York section, and in that portion of Vermont bordering on Lake Champlain. Elsewhere there was an excess in precipitation, the departures being considerable in the central and southwestern sections. The amounts equaled or exceeded in many instances twice the normal October rainfall in northern Ohio, southern and central lower Michigan, and in the Green Bay region and Fox River Valley of Wisconsin, several stations within this area reporting the heaviest October rainfall on record—more than 7 inches. The largest total reported was 7.42 inches at Wayness Wisconsin, which is 5.13 inches above the inches at Waupaca, Wis., which is 5.13 inches above the normal.

The heaviest rains occurred mainly during the first week of the month, this rainy period really being continuous from the last week in September. This period and that of temperature below the normal referred to above rather closely coincide. Rain did not fall as frequently during the balance of the month, but it was nevertheless well distributed, the number of rainy days being far above the normal for October within the area of excessive precipitation. There was a rainfall of 2.27 inches at Milwaukee, Wis., on the 3d, and the following heavy rainfalls were noted in Ohio: Akron, 2.70 inches on the 1st; Bucyrus, 2 inches on the 17th; Hiram, 2 inches on the 1st, in 6 hours; Hudson, 2.55 inches on the 1st, in 6 hours; Tiffin, 2.10 inches on the 1st. Concerning the heavy October rainfall in the Lower Michigan Peninsula, Mr. C. F. Schneider, section director, reports as follows:

The period of heaviest rainfall was from the 1st to 6th, inclusive, and 3 to 5 inches fell during this time at many stations in the lower peninsula. This was a continuation of a rainy period beginning September 24. From September 24 to October 6, inclusive, the total rainfall at Grand Rapids was 9.25 inches, Grand Haven 7.80, Big Rapids 6.11, Saranac 8.22, Owosso 5.55, and Saginaw 6.02. While the heavy rainfall in some localities caused all streams in the affected districts to rise somewhat, there was nothing approaching flood conditions. At Grand Rapids the maximum river stage was only 3.4 feet above the stage previous to the beginning of the rainy period.

Snow fell in nearly all portions of the district, although it was very light except in the Adirondack region on the 6th and 7th, when a heavy fall occurred.

SEVERE STORMS.

There was less wind movement than usual for October and but few severe windstorms, the stormiest period being generally from the 1st to the 4th. The highest velocity reported at any station was 64 miles from the southwest at Buffalo. Some little damage was done in Ohio by the combined wind and rain storms, as shown by the statement of Prof. J. Warren Smith, section director, Columbus, Ohio:

A large amount of damage was done along the southern border of the district by the heavy rain and wind storm that occurred on the 1st. In Allen, Hardin, and Wyandot Counties the high wind demolished a number of barns, unroofed several houses, destroyed orchards, and damaged a large amount of corn. In Summit County the rainfall was especially heavy and considerable damage was done by flooding. Washouts were reported on several railroads and the plant of the Akron

Selle Co. was flooded, throwing more than 200 men out of work for a short time. A gale passed over Lake Erie on the 4th, doing minor damage in Cleveland and other places along the lake shore. Many apples were blown from the trees in Ottawa County. At Cleveland a large Government dredge was blown upon the breakwater and badly damaged.

MISCELLANEOUS.

Fog.—Fog was observed on a couple of days during the first decade in the Lake Superior region, but it occurred mainly during the second decade in other portions of the district. Transportation interests, as far as known, were not affected, except in the Detroit River in the early morning of the 18th, when the fog became so dense as to require the suspension of navigation for two and a half hours.

Auroras.—Auroras were observed in Vermont and New York State on the 10th and 24th and in Michigan on the 18th.

OCTOBER, 1911, LAKE LEVELS.

The following data, from the report of the United States Lake Survey Office, relative to water levels of the Great Lakes during the month, are reproduced here because of their value to various interests in this district:

Mean October level above tidewater at New York.

	Teer.
Superior	602, 23
Michigan-Huron	579.60
Erie	571.53
Ontario	244.62

Lake Superior is 0.03 foot higher than last month, 0.31 foot higher than a year ago, 0.64 foot below the average stage of October of the last 10 years, 1.33 feet below the high stage of October, 1869, and 0.65 foot above the low stage of October, 1879. It will probably fall 0.2 foot during November.

Lakes Michigan-Huron are 0.03 foot lower than last month, 0.49 foot lower than a year ago, 1.14 feet below the average stage of October of the last 10 years, 3.44 feet below the high stage of October, 1885, and 0.13 foot above the low stage of October, 1896. They will probably

Lake Erie is at the same level as last month, 0.35 foot lower than a year ago, 0.62 foot lower than the average stage of October of the last 10 years, 2.17 feet below the high stage of October, 1885, and 0.73 foot above the low stage of October, 1895. It will probably fall 0.3 foot during November.

Lake Ontario is 0.29 foot lower than last month, 0.76 foot lower than a year ago, 1.25 feet lower than the average stage of October of the last 10 years, 3.19 feet below the high stage of October, 1861, and 0.95 foot above the low stage of October, 1895. It will probably fall 0.3 foot during November.

TABLE 1.—Climatological data for October, 1911. District No. 4, Lake Region.

		ne i	years	Temp	perature	, in c	legre	es Fab	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		lireo	
Stations.	Counties.	Elevation, feet.	Length of recard, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing winddirection.	Observers.
Minnesota.																				1
Cloquet	St. Louisdo	800 1,133 1,257 1,500 614 1,434	40 6 4 17 17	40. 4 41. 9 30. 0 44. 0 40. 6	- 3.3 - 1.2 - 1.8	69 66 71 67 71	11 8 12 9† 12	9 16 6 15 10	31 31 31 31 31	38 26 39 30 37	1.54 1.37 1.12 0.80 1.00 0.74	- 1.37 - 2.09 - 2.07	0.50 0.50 0.50 0.54 0.50 0.38	T. T. 0 0 0	6 9 3 4 4 5	11 9 18 17 13 13	7 9 3 8 16 7	13 13 10 6 2 11	nw. w. n. w. ne. w.	S. B. Detwiler. U. S. Weather Bureau. M. H. Schussler. Oliver Iron Mining Co. G. W. Watts. Oliver Iron Mining Co.
Wisconsin.		-, -												7		-				
AppletonAshlandBayfield	Ashland	795 647 635 804 1,060	10 20 2 13 16	47.8 44.6 45.2 46.4	- 1.1 - 3.2 - 1.2	70 70 69 72	12 9 8 12†	24 21 21 26	27 31 31 27	26 32 24 34	6.34 2.34 1.79 5.87	+ 4.59 - 0.50 + 3.46	1.99 1.02 0.80 2.31	0.2 T. T.	15 6 6 10	13 15 11 8	11 16 16	14 5 4 7	w. ne. sw. sw.	Wm. O. Thiede. Sam Wheeler. John P. Kiel. Louis W. Schmidt.
Trandon Florence Fond du Lac. Grand River Locks Green Bay. High Falis Iron River Kewaunee Manitowoc Menasha Menomonee Falls Milwaukee	Florence Fond du Lac. Marquette. Brown Marinette Bayfield. Kewaunee Manitowoc. Winnebago Waukesha Milwaukee	810 1,096 590 616 764 842 681	20 25 15 25 0 2 2 60 14 2 40	45.2 42.6 48.0 48.9	+ 0.6	72 71 66 68 68	9 12 18† 16 12 12 8 11 	19 22 21 24 16 10 26 25	30 27† 27 27 27 27 31 27† 27 28 27	30 33 32 22 38 36 27 22 24 20 30 31	2.30 4.80 6.00 4.15	+ 2.08 +, 2.12 + 2.65 + 2.31 + 3.46 + 1.60 + 1.50 + 3.77 + 2.31	2.31 1.70 1.46 2.08 2.51 0.75 1.38 2.05 2.12 1.41 2.27 2.50	T. T. 0 T. 0.1 0.1 0.5 0.1	7 6 13 10 8 10 8 10 8 10 10	13 8 11 5 2 13 10 7 13 10 7 6	7 7 3 6	19	e. nw. ne. sw. nw. w. nw. nw. nw.	Fred S. Evans, Geo. W. Marshall. Jerry Parkinson. U. S. Weather Bureau. No. Hydro-Elec. Pow. Co. Winfield E. Tripp. Eugene V. Kimball. Johanna Lüps. Geo. T. Allanson. Arthur H. Christman. U. S. Weather Bureau.
New London Oconto Oshkosh Pine River. Plum Island. Plymouth Port Washington. Racine Ripon Sheboygan. Sturgeon Bay Superior.	Oconto. Winnebago. Waushara. Door Sheboygan Ozaukee Racine Fond du Lac. Sheboygan Door. Douglas.	633 935 831 600 671	15 20 22 16 3 1 18 14 1 12 12 12 2 16	48.6 47.8 49.4 50.2 48.4 49.5 46.4 42.6	- 0.0 - 2.3 - 1.0 - 0.9	69 68 68 72 64 69 70 71 71 66 63 66 72	12 12 18 12 8 12 18 4 12 18 12 18 12 18	22 28 21 23 20 18 32 23 26 25 21 25 26 18 16	28 27 27 27 27 27 26 27 28 27 28 27 27 26 31 27	30 31 29 31 23 26 24 28 27 20 32 28 35	4. 91 7. 11 4. 66 4. 72 2. 63 4. 11 5. 49 5. 12 6. 09 1. 73	+ 3.77 + 2.31 + 2.78 + 4.76 + 0.68 + 2.52 + 2.73	1. 74 1. 64 1. 89 1. 90 1. 75 0. 96 2. 20 1. 44 1. 82	T. 0 0 T. T. 0 5 T. T. 0 0 0	9 13 11 13 7 9 12 8 11	11 11 6 9	8 10 13 5 10 3 3	19 13 17 14 9	nw. nw. w. se. se.	August H. Pape, Wm. K. Smith. Evan Vincent. Geo. H. Carpenter. Geo. C. Robinson. Paul O. Feldrappe, Richard C. Kann. Daniel Davis. Ripon College. Louis C. Meyer. Adam N. Dier. Edward B. Banks.
Illinois.		857 824	41		+ 0.1	79	3	32	27	25		+ 1.24	A.D.	T.	12	13			100	James H. Flagg. U. S. Weather Bureau,
Auburn. Berne. Elkhart. Fort Wayne. Hammond. Hemmond. Houth Bend. Whiting.	Adams. Elkhart. Allen. Lake. Lagrange. St. Joseph.	874 849 801 856 598 886 726 606	15 2 9 15 20 6 18 2	51. 6 53. 8 51. 2 51. 8 51. 4 50. 6	- 2.0 - 2.5 - 2.0 - 2.5	80 82 80	6 6 16† 6 3 16 6† 3	23* 26 30 29 28 26 28 29	28 29† 28 29 29 29 28 28 24	43ª 32 35 32 36 34 30 29	3. 25 3. 90 3. 51 4. 44 3. 72 4. 74	+ 0.62 + 1.09 + 2.63 + 2.32	0.90 0.87 1.53 1.20 1.05 1.47	0 0 0 0 0 T. T.	14 14 18 8 7	12	14 13 9 6 0 4	7 8 17 18 17	ne. nw.	Mrs. Josie B. Kuhlman. Henry M. Reusser. Dr. Miles Medical Co. U. S. Weather Bureau. Carson W. Whitney. James E. Zook. Henry H. Swaim. D. H. Boyd.
Michigan — Upper Peninsula. Baraga	BaragaOntonagon	1.300	9	41.9		71	9	234 13	18	37	2.40		0.91	T.		70			W.	D., S. S. & A. Ry. Frank McMonigal.
Blaney. Calumet Chatham Deer Park Detour Eagle Harbor Escanaba Ewen Grand Marias	Houghton	1,246 875 610 585 622 612 1,147	10 10 10 12 38 10	43. 2 41. 5 46. 7 45. 9 44. 8 45. 6 41. 2	- 0.7 - 3.3 + 0.5 - 0.7 + 2.4 + 0.5 - 3.8	60 72 63 70 62 62 71	9† 9 16 9 10 8 9	20 18 24 22 21 24 14	30 26 26 30 31 28 31	17 40 25 35 ^a 26 24 37	1.73	- 1.02 + 0.43 - 0.53 + 1.63 - 0.71 + 1.54 + 0.00	2.00	3.0	8 6 4 12	12 13 5 6	20 7	10	n. sw.	E. S. Grierson. U. P. Experiment Sta. Mrs. Sarah E. McGaw. Linton Melvin. John Nolen. U. S. Weather Bureau. W. B. Hatfield.
Green. Houghton. Humboldt Iron Mountain	Houghton	622 668 1,536 1,111 1,504 1,520	0 10 14 10 14 8 11	48.9 44.7 42.0 44.7 42.6 43.0	+ 0.7 + 0.1 - 0.9 - 0.9	64	9 9 9 9 8† 6 9	33 23 14 21 15 20 19	26† 31 30† 27 29† 31 30	37	2, 31	- 1.19 - 1.01 + 1.88 + 1.39	0.86 1.16 0.38 1.98 2.25 1.10 0.70	0 0.1 T. T. T. T.	11 6 11 6 6	8 12 13	14 12 12 2	7 14	nw. nw. w. w.	. Mrs. Lena Truedell. T. A. Green. U. S. Weather Burean. D., S. S. & A. Ry. Chapin Mining Co. Victor D. Laing. J. V. Brennan. Cleveland Cliffs Iron Co.
ishpeming. Isle Royale. Mackinac Island. Maple Ridge. Marquette. Menominee Munising. Newberry. Powers.	Marquette	734 581 631 773 868	10 5 40 12 14 9	43.2 45.1 46.9 44.4 43.6	- 1.0 - 0.6 - 2.6 + 0.4 - 2.4 + 2.8 + 0.4	70 633 70	12 9 8 16 8 9 2 13†	24 20 25 23 25 21 20 26 21	29 28 30 27 26 30 26 26 30 30	25 36 26 23 36 33 38 27	3.31	- 1.29 + 3.28 + 0.84	1.10	0.8	13 9 14 14	11 3 15 9 7 6	8 12 5 8 12 15	12 16 11 14 12 9	e. n. w. nw. nw. s.	J. A. Maione. M. I. S. P. Comm. Herman Johnson. U. S. Weather Bureau. Chicago & Northwestern R Albert Oas. John Brown. Chicago & Northwestern R
St. Ignace. Sault Ste. Marie Thomaston Victoris. Watersmeet. Whitefish Point Michigan—Lower	Mackinac	1,347 1,263	11 21 23 14 1 1 2 11	42.6 40.9	- 2.5	75	9	26 21 13 16 10 25	31	39	2.31 3.50	- 0.09	0.69	1.0 T.	11 15 12 13 13	10	8 5	23	e.	D., S. S. & A. Ry. U. S. Weather Bureau. D., S. S. & A. Ry. R. S. Schultz, Jr. B. N. Grant. Robert Carlson.
Penineula. Adrian	Allegan	698 750 609	33 20 24 38 31 15	51.1 47.8 46.5 49.2 46.8	- 0.7		8 18 4	25 31 26 27 27 27	28 28 28 30 28 28	41- 48 31 28 32	5, 23	+ 2.85 + 3.16 + 0.49	1.04 0.91 1.50 1.35 1.84 1.90	T. T.	13 13 11	1 5 7 5 8 2	12		50. 5W.	H. E. Hubbard. Pete Marquette R. R. P. M. Smith. U. S. Weather Bureau. University of Michigan. Wm. Atkin.

TABLE 1.—Climatological data for October, 1911. District No. 4—Continued.

			rears.	Tem	peratur	e, in	degre	es Fal	renh	eit.	Pre	eipitation	, in in	ches.	days,		Sky		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, 3	Moan.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of	-	Observers.
Michigan—Lower Peninsula—Cont.		N N																		La Comment
Battle Creek	CalhounBay	. 593	27 15	49.9 48.2	- 1.9 - 1.9	73 70	16 16	26 29	27 28	28 34	6.07	+ 3.42	1.80	Т.	10	7 13	8	16 14	s. ne.	Elmer E. Sager. Pere Marquette R. R.
Bay City Benzonia Berlin	Benzie	. 832	15 15 15 22 15	48.2	- 0.7	70	15			35		+ 1.97	1.21	0.4	12		10		nw.	J. W. Saunders. R. O. Gould.
lie Rapids	Mecosta	. 906		45.6 50.2	- 2.5	70 74	16 16	26 25 29 28	28 28 28 30	34 30	6.95	+ 4.30	1.73 1.22	T.	16	8 9 13	8	14	nw.	Charlie Gay. John M. Haven.
loomingdale adilise assopolis harlevoix	. Wexford	1.293	7 2 10	46.4		66	15†	28	30	26	3.74	••••••	1.80	0	9	8	0	23 14	nw.	Cadillac W. & L. Co.
harlevoix	. Charlevoix	610	33	46.0	- 3.4	64	16	30	14†	30		*******	******	0		6	11	14	w. nw.	Michigan Central R. R. Pere Marquette R. R.
heboygan	. Cheboygan	611	21	48.6	- 2.9	70 71 73 74	16 20 16	30 28 24 23 22 25 27	27† 26† 28 24 28 28	29 34	4.31	+ 2.07	1.40	т.	8	16	16	11 8	6.	City of Charlotte. E. A. Bouchard.
lintonoldwater	. Lenawee	830	21 14	51.2 51.5	+ 0.3	73	16 16	23	28	36	4.50	+ 2.07 + 2.21 + 1.57	1.00	T. T. T.	10 12	14 13	5 2	12 15	nw.	David Woodward. L. S. & M. S. R. R.
oncord	. Jackson		6	49.6		74	16	25	28	37	3.83		1.10	T.	8	12	14	5	SW.	W. N. Armstrong. G. R. M. P. Co.
rotonetroit	. Wayne	730	3 40	48.5 50.8	- 0.9	73	16	32	28	31 21	7.33	+ 1.92	1.35 0.90	0	14 12	3 9	15	13	W. 6.	U. S. Weather Bureau.
urandast Tawas	. Shiawasee	799	14	46.8		64	14	22	28†	29		+ 1.82	1.10	0	13	14	ii	6	sw.	H. J. Tobin. D. & M. Ry.
loiseint	. Wayne	640	14 22	50. 2 48. 0	- 2.0 - 2.5 - 0.8	70 70	16	22 28 28 30	28 28	30 28	4.24	+ 1.93 + 1.48	0.88	T.	12	8 9	9	14 12	W.	John Gilmore. William Fisher.
ankfort	. Benzie	589	7	48.8	- 0.8	69	17	30	30	23	5.22	+ 1.48	1.70	0	9	6	0	25	88.	Geo. Morency.
anges	. Otsego	1,367	11	50.2 44.2	- 1.2	75 68	16 9	32 20	27† 30	24 34	6.86 5.57	+ 2.51	1.79 1.62	T. T.	13 12	7 3	8	16 20	SW.	H. H. Hutchins. Michigan Central R. R.
adwinand Haven	. Gladwin	794	15 30	46, 2d 49, 4	- 1.8	73d 76	15 16	25 ⁴ 32	28	36d 26	5.05d	+ 2.85 + 4.25	2.40d 2.20	T.d 0.3	5d 15	15d	3d	9d 17		Geo. R. Smith. U. S. Weather Bureau.
and Rapids	. Kent	707	22 21	49.6	- 0.8 - 0.5 - 1.5	74	16	32	28	26	6.71	+ 4.17	2.11	T.	15	4 9	8	19	se.	Do.
ass Lake	. Jackson	989	5			71 69	16	26 26 23 27	28 28 28 30	31 30	3.90 3.25	+ 1.91	1.00	T.	13	18	10 2	12 11	w. ne.	Joseph W. Morris. Menzo Conklin.
ayling	. Crawford	1,147	21 23	44.8	- 1.5	68 70	12† 19	23	30 28	34 30	5. 56 4. 73	+3.36 + 2.14	1.69	T. 0	8 7	9	8 12	14	nw. ne.	S. N. Insley. Pere Marquette R. R.
rrison	. Ciare	1,159	18																	Do.
rrisville	. Oceana	698	18 27 19	49.0	$+1.6 \\ -0.6$	67 72	18	26 32 30	28†	31 29 31	3.61 3.83	$+0.89 \\ +1.23$	0.70	T.	13	8 2 9	9 12	14	SW.	D. W. Mitchell. Pere Marquette R. R.
yes		620 830	21 19	48.0	- 1.9	72	16	30	26	31	4.18	+1.51 + 2.38	1.50	2.0	9		6	16	ne.	C. F. Leipprandt. A. D. De Garmo.
İsdale	Hillsdale	1,150	14	49.0	- 2.5	73	16	24	28†	29	4.62	+ 1.90	1.05	0.5	16	12a	5a		SW.	C. L. Herron.
llandwell	. Livingston	924	19	49.0 48.5	- 1.0	70 69	4	28	28† 8† 27	25 28		+ 3.05	1.70	T. 0.4	15 12	3 10	19	13	e. sw.	City of Holland. Frank Sharp.
kson			22 14	45.6	- 0.8 - 2.6	68 72	15 16	24	30	30 34		+3.07 + 0.90	2.05 0.94	0. 2 T.	10 11	6	15 11	10 14	se. ne.	O. L. Giddings. City of Jackson.
ldo	St. Clair	667	22 35	48.7	- 0.8	70	16	24 30 28 24 24 26 29 26 28 26 31	28	28 29	4.31	+ 1.77	1.09	0.2	10	13	6	12	sw.	William Bice.
lamazoonsing (Agr. Col.)	Ingham	820	47	48.0	-1.1 -0.7	75 71	16 16	26	28	30	5.00	+ 2.90 + 2.77	1.33	0.3	10 14	9	13	16	w. e.	Kalamazoo Asylum. U. S. Weather Bureau.
nsing (Capitol)	Lapeer	881 827	24 12	48.8	- 0.7 - 2.5	72 70	16	28	28	28 29	4.89	+ 2.52 + 2.53	1.83	T. 0	14	6	9 22	16	SO. SW.	State board of health. Michigan Home.
dingtonther	Mason	586	13	48.4	- 2.1	72 70	16	31 26	27†	26 36	5.07	+ 2.95	1.00	T.	8 8 15	7	14	10	SW.	Pere Marquette R. R. John W. Nichoson.
ckinaw	Cheboygan	592	20	46.5	- 1.3	64	15	26	27	24	3.60	+ 0.10	0.75	T. 0	9	8	5 16	18	90. SW.	G. R. & I. R. R. G. R. & I. Ry.
nistee	Antrim Manistee	600	15 14	46.2	- 1.3 - 1.0 + 0.9	69 73	16 17	24 29	30 29	29 30	6.00	+ 3.07 + 4.77	1.60 2.20	T.	9 7 7	18 14	10	12	e. nw.	G. R. & I. Ry. Pere Marquette R. R.
rshalldland	Calhoun	896	12	*****								+ 1.23			7					E. B. Stuart.
renci	Lenawee	811	4		- 3.6	71 78	16	24 25		46 33	4.48		1.10	T.	14	10	9 5	16 16	S. SW.	Pere Marquette R. R. George J. Tripp.
unt Clemens	Isabella	826	11 12	45.2	- 3.5	70 62	4	30	5	30	4.18	+2.04 + 2.02	1.15	0	11 7	13 15	0	18 16	sw.	Waterworks. Pere Marquette R. R.
skegon 1 Mission	Muskegon	587 858	15 17	49.8	- 1.3 - 1.9	75 70	16 9	30 28	27	24 27	3. 10	+ 0.68 + 3.18	1.25 1.65	T.	7	8 7	11	19 13	W.	G. R. & I. Ry. E. O. Ladd.
vet	Eaton	934	21		- 1.1	70	16	28	281	24	5. 42	+ 2.88	1.13	0.5	16	12	4	15	nw.	G. A. Knapp.
neraway	Presque Isle		12 8	43.6		65	18	20 17	23 27	38	6.75	- 0.20	0.80 2.30	0-	5 9	3 9	9 5	19 17	sw. n.	D. & M. Ry. Do.
vossotoskey	Shiawassee	731	14 21	46.8	- 2.6 - 1.2	74 70	4 17†	26 25 271	28	30 30	5. 91	+ 3.55 + 1.10	2.30 1.99 0.52	0	14 12	4 7	20 7	7 17	nw.	Owosso Sugar Co. G. R. & I. Ry.
mouth	Wayne	725	14	50.01	- 1.3	745	26	271	27	38 i				0						Pere Marquette R. R.
t Austin	Huron	618	11 14	49.6	+0.4 -2.5 -0.4	70 70	15†	28 30	8	29 30	4. 91	+ 2.70 + 2.12 + 1.37	1.22	T.	12 10	15 12	2 4	14	SW.	Fred W. Shaw. Pere Marquette R. R.
t Huron	St. Clair	639	36 14	49.1	- 0.4 - 0.1	68 70°	16 16	29 28 f	28	25 34€	4. 10 5. 01 e	+ 1.37 + 3.30	0.88 1.50°	0.50	11 14e	10 8b	7 0b	14	ne. nw.	U. S. Weather Bureau. Pere Marquette R. R.
common	Roscommon	1.141	10	45. 0b	- 0.6	67b	12	206	30	35b	5.03b	+ 3.57	1.90b	0.1b	86	66	12b	11b	W.	State Forestry Com
inaw inaw, West Side	Saginawdo	601	9	49.2 48.3	- 1.7	70 71	16	31 27	28	29 30	5. 40 5. 99	+ 3.35	1.57	T.	11 13	8 7	13 9	10 15	ne. nw.	Postmaster. Robert B. Hudson.
James Joseph	Charlevoix	681	5 24	46.0	- 1.2	62 78	16	26 35	30†	20 24	5. 11	+ 1.07	1.65 1.15	T.	13 12	9 7	8 7	14	sw. nw.	James Malone. City of St. Joseph.
dusky	Sanilac	790	2		- 0.7	70	16	26 35 25 29 32	28	36	5.93		1.60	0	10	15	5	11	ne.	Pere Marquette R. R. John Wallington.
anacth Haven	Van Buren	585	16 15	49.6	-1.7	73 68	16	32	81	37 22		+ 3.82	2.20	T.	11 12	5 15	1 8 7a	25 8	6. 86.	Mrs. M. E. De Diemar.
ntonornville	Montcalm Lapeer	880 975	17 34	47.7	+ 1.3	68a 68	3† 19	30° 24	28	24° 27	4.13	+ 1.17 + 1.12	1.80a 1.85	0.6a 0.5	8a 7	8a 8	7a 8	15a 15	sw. ne.	City of Stanton. J. S. Caulkins.
verse City	Grand Traverse	588	14	48.0	- 2.6 - 2.2	70	17	30	30	27	5. 37	+ 2.79 + 2.17	1.80	0	1	8 4	6	21	nw.	G. R. & I. Ry.
sepi	St. Joseph	842	10 14	50.1	- 2.2	70 77	16 16	25 26	28 28	33 40	6.08	+ 2.17 + 3.43	2.00 1.12	T.	8 15	10 17	6 3	15 11	sw. nw.	Pere Marquette R. R. Charles A. Palmer.
st Branchodlawn(p.o.Vienna	Ogemaw Montmorenci	973	7 9	42.8		68	9	19		36	6.38		1.55	T.	13	7	8	16	sw.	Michigan Central R. R. T. C. Mathews.
silanti	Washtenaw	736	26		- 0.5	69	16†	25	28	31		+ 2.12	1.05	0	14	0	22	9	nw.	Orin J. Bemiss.
Ohio.	Summit	1.081	24	52.0b	+ 0.4	74a	6	29ь	29	30	6, 40	+ 4.18	2.70	0	13	11	16	4	sw.	Prof. C. R. Olin.
ronton Ridge	Hancock	800	18	51.3	- 1.8	80	6	27		33	4.68	+ 4.18 + 2.61 + 1.95 + 2.70 + 2.43 + 2.33	1.20	0	14	13	6	12	ne.	J. W. Powell.
wling Green	Wood	1,000	30 17	53.0	+ 1.4	80	6	26	28 29	33	4.51	+1.95 + 2.70	1.31 2.00	0	13	12 13	7	15 11	ne.	G. C. Houskeeper. James R. Hopley.
eyrusveland (1)veland (2)	Univahoga	762	40 14	51. 3 50. 8 53. 0 51. 9 51. 2	- 1.2	80 82 75 75 76 81 82	6	27 26 24 34 33 31	29 28 29 29 29	36 27 28 32 32 38	5.16	+ 2.43	1.42	T.	12 12	0	5	17 15	se.	U. S. Weather Bureau. Rev. F. L. Odenbach, S.
meaut	Ashtabula	675	1 17	51.5	- 2.0	76	4	31	8 28 29	32	4.15	+ 1.53	0.91	0	15	11 12 12 19	5 3 7 3	16	SW.	E. L. Ransom.
fiancedlay	Defiance	712 776	17 22	51.0	-2.0 - 1.8	81	6	26	48	52	3.89	+1.53 + 2.82	1.52	0	14	12	7	12	SW.	John F. Heilshorn. Dr. E. A. Moser.

TABLE 1.—Climatological data for October, 1911. District No. 4—Continued.

			years	Temp	perature	, in d	legre	es Fahr	renhe	eit.	Prec	ipitation,	, in in	ches.	days,		Sky.		direc	
Stations.	· Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy of 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevailing wind tion.	Observers.
Ohio-Continued.								•												E Gambo Whomas
remont edges illhouse iram udson ima edina ontpelier apoleon ew Bremen orth Royalton	Paulding. Lake. Portage. Summit Allen Medina Williams. Henry Auglaize. Cuyahoga. Huron Lorain	628 725 997 1,260 1,153 875 944 880 680 1,038 1,000 719 855	9 17 18 31 50 12 23 19 24 18 18 25 36	52. 4 51. 5 50. 9 50. 8 50. 5 50. 4 51. 3 51. 2 52. 8 52. 8 51. 3 52. 7	- 1.0 - 0.7 - 0.0 - 1.0 - 2.4 - 0.9 + 0.1 - 0.2 - 1.6 - 0.2 - 0.4 - 1.3 - 1.5	81 82 80 73 75 80 76 79 81 81 74 80 78	6 6 4 4 6 6 6 6 6 6 6 6	29 23 29 26 27 24 25 29 28 29 27 26 27 30 33 33 28 27 24	29 28 29 29 29 29 29 29 29 29 29 29 29 29 29	33 35 33 30 33 32 35 34 32 29 31 34	5. 93 7. 22 2. 52 6. 20 3. 46 5. 01 3. 07 6. 24 5. 31	+ 1.89 + 1.96 + 3.11 + 4.53 + 0.56 + 3.80 + 1.21 + 3.05 + 1.16 + 3.79 + 3.05 + 3.40 + 2.46	1.30 1.00 1.26 2.00 2.55 1.02 2.23 0.77 1.53 0.62 1.93 1.60 1.30	T. 0 0 T. 0 0 0 T. 0 T.	11 9 13 11 17 6 10 11 12 10 11 11 11 14 14	14 10 12 11 14 13 11 14 8 12 6 10 5	4 12 9 8 6 8 3 7 3 15 11 12 3 10	13 9 10 12 11 9 15 13 14 8 13 18 16	SW. SW. W. NW. SW. NW. Se. W. SW. NW. SW. NW. SW. NW.	E. Stanley Thomas. Charles Stutzman. J. W. Doncaster. Prof. G. H. Colton. Dr. W. I. Chamberlain. Miss Ollie De Long. F. W. Clark. G. L. Laser. A. C. Senter. Miss Lillian Grobaus. W. S. Edgerton. Giles R. Gregory. Prof. F. F. Jeweyt. Prof. J. T. Maidow.
ttawa indusky iffin	Putnam Erie Seneca Lucas Wyandot Sandusky Fulton	720 629 775 769 854 588 780 649	16 34 29 40 28 18 39 17	51.4	- 1.3 - 1.5 - 0.3 - 1.2 - 0.6 - 1.0 - 0.5	82 79 78 78 80 81 80	6 6 6 6	32 30 33 28 27 24	28† 29 29 29 29 29 29 28	34 30 30 31 32 34 38	5. 06 5. 15 4. 46 4. 43 5. 58 5. 10	+ 2.63	1. 10 1. 41 2. 10 1. 15 1. 08 1. 52 1. 21 1. 42	0 0 0 0 0 0 0	15 15 17 11 15 16 11	10 11 13 10 10 10 12	6 9 3 14 7 13 4	15 11 15 7 14 8 15	SW. W. SW. SW. S. SW. W.	U. S. Weather E ureau. Prof. T. H. Sonnedecker U. S. Weather E rreau. Robert E. Tracht. John W. Barr. Thomas Mikesell. C. M. Richardso
Pennsylvania.	Erie	658	38	51.5	- 1.6	73	4	33	28	24	3. 47	- 0.33	1.20	0	13	5	10	16	s.	U. S. Weather Pareau.
New York.														1	-		10			A. F. Cooley
iba aust ayetteville aust ayetteville dabriels darkness temlock Lake funt thaca . Ceene Valley King Ferry ake George ake Placid Club e Roy ockport owville foira North Lake gedensburg Did Forge swego bytto alermo erry City hiladelphia otsdam aquette Lake Rochester Romulus shortsville skaneateles syracuse riconderoga rupper Lake Volusia Wanakena Watertown Wedgawood Westfield	Allegany. Niagara Cayuga Livingston Hamilton Monroe Erie. St. Lawrence. Jefferson Washington. Clinton do Genesee Franklin Clinton Livingston Livingston Livingston Clinton Livingston Clinton Livingston Livingst	715 585 1,750 537 767 448 248 248 248 151 1,490 1,550 530 1,729 622 900 1,321 908 1,824 1,000 1,824 1,750 1,864 910 1,850 1,864 910 1,850 1,864 1,038 1,733 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410 1,038 1,410	111 144 3 21 244 444 411 3 3 100 277 3 341 7 7 552 355 35 35 111 12 16 9 9 11 12 19 19 19 22	48. 6 48. 8 48. 8 49. 1 49. 7 47. 5 50. 2 47. 5 50. 2 47. 3 48. 6 47. 2 49. 8 40. 9 40. 9 40	+ 0.3 - 1.2 + 0.4 - 2.6 + 0.9 - 1.2 - 0.3 - 0.1 - 1.6 - 1.5 - 0.7 - 0.5 - 1.2 - 1.6 + 2.7 - 0.5 - 1.2 - 1.6 - 1.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.7 - 0.5 - 0.6 - 0.7 - 0.6 - 0.7 - 0.6 - 0.8	79 73 72 71 73 70 72 71 70 71 71 70 73 76 81 80 80 80 72 72 71 73 76 76 77 77 77 77 77 77 77 77 77 77 77	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	27 21 27 21 27 21 25 27 27 21 24 4 1 20 24 24 25 27 27 20 24 24 25 27 27 27 20 21 21 24 21 21 21 21 21 21 21 21 21 21 21 21 21	28 27 27 28 28 28 28 28 28 28 28 28 28	32 36 33 28 30 27	2. 12 1. 78 3. 23 3. 68 3. 52 2. 40 2. 40 2. 2. 67 2. 23 2. 12 2. 79 2. 38 3. 34 4. 29 4. 3. 31 3. 68 3. 44 4. 29 4. 3. 31 3. 68 3. 68	- 0.06 - 0.19 - 0.19 - 0.19 - 1.33 - 0.77 + 0.21 + 0.15 + 0.18 + 0.26 - 0.32 - 0.54 - 1.28 - 0.11 - 0.50 - 0.31 + 0.19 - 0.31 - 0.31 - 0.36 - 0.31 - 1.14 - 0.60 + 0.52 - 0.36 - 0.31 - 1.14 - 0.60 + 0.52 - 0.36 - 0.31 - 1.14 - 0.60 + 0.52 - 0.45 - 1.22 - 0.38 - 0.45 - 1.22 - 0.38 - 0.45 - 1.07 - 0.45 - 1.07 - 0.45 -	0. 33 0. 81 0. 66 0. 67 0. 80 0. 74 1. 0. 80 0. 99 0. 66 1. 00 1. 00	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 6 12 11 11 11 11 11 11 11 11 11 11 11 11	7 9 17 10 6 6 22 13 13 12 11 11 10 10 10 11 11 11 11 11 11 11 11	3 122 111 5 5 8 14 6 6 10 16 16 4 9 9 14 11 17 7 10 13 10 5 5 7 7 15 15 11 19 9 4 18 11 11 18 11 12 6 6 6 13 1	12	n. s.	A. E. Cooley. Charles P. Arnold. H. A. Van Wag der. A. H. Underwood. W. G. Markham. B. F. Merwin. W. H. Lennon. U. S. Weather Dureau. Do. Verne M. Rice. Washburn Faniter, C. W. R. North. Dr. W. N. Thayer. Joseph S. Wilfo'd. Santa Clara Ludber Co Dana H. Wells. Gabriels Sanitarium. J. H. Harkness. D. H. Westburf. W. S. Barager. U. S. Weather Bureau. E. R. Wells. Lucius A. Goodyear. Charles Forsell. Henry van Hoevenberg F. W. Ball. J. E. Wakemars Charles Forsell. J. E. Wakemars Charles J. Rice. C. E. McBride. L. W. Brown. John F. Redmond. State Hospital. Mrs. S. W. Neison. U. S. Weather Bureau. William J. Wienk. E. B. Bartlett W. H. Jeffers. E. D. Babcock. A. E. Sutherhold. R. J. Dunning. U. S. Weather Bureau. William J. Wienk. E. B. Bartlett W. H. Jeffers. E. D. Babcock. A. E. Sutherhold. R. J. Dunning. U. S. Weather Bureau. John H. Coryve. C. H. Latting. Edward Courch. U. S. Weather Bureau. William J. Wienk. E. B. Bartlett W. H. Jeffers. E. D. Babcock. A. E. Sutherhold. R. J. Dunning. U. S. Weather Bureau. John H. Coryve. C. H. Latting. Edward Courch. U. S. Weather Bureau. William J. Allen. O. F. Corwin. John R. Rogers. B. V. Brookins.
Vermont.									000	90	9.0	0.90	1 1	0 0	0 10		111	13	s.	U. S. Weather Bureau
Burlington Cornwall Enosburg Falls Northfield Vells	Addison Franklin Washington	507 601 870	17 19 19	46.3 47.4 46.3 43.8 45.6	- 0.3 - 1.6 3 - 1.6 8 + 0.3 - 2.6	65 65 65 65 65 65 65 65 65 65 65 65 65 6	10	22	28 28 28 28 28 28	36 38 41 39 23	2.8 3.9	$ \begin{array}{c c} & -0.32 \\ & +1.98 \\ & +0.01 \\ & +1.48 \\ & +2.38 \end{array} $	2.0 1 .7 1 1.8	5 0.4 7 T. 5 2.5	5 8	14	10	13 12	s. s. s.	C. H. Lane. L. H. Pomerci. U. S. Weather Bureau E. R. Pember.

^{*,} b, °, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2 .- Daily precipitation for October, 1911. District No. 4, Lake Region.

Stations.	Watershed.		Y												1	Day	of mo	nth.															
Stations.	watersned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																																	
oquet	L. Superior	****	****	. 34	.01	.50	26	****						. 15	T.	.01	. 45		.01 T	T	T.	T.	T.	.09									1 1
odwood	do						. 43										.50							. 19									. 1
o Harbors	do			.12	.07		.10		****		****		****	.05			.54	T.		. 07				T.		****			****				. 1
ginia	do		****	.14	. 06									.06		. 38							T.	. 08						T.			
Wisconsin.	17		-			01		00									-	~	-	-				10	-	40							
pletonlandlandl	L. Superior	1. 43	.00	.16		.01	.72	.03	****					.07	. 40		1.02	. 02	T.	.05	.06			.18	.08	.18					Т.	.24	
field	Fox	-49	T	1.21	T	07	2.31							T.	. 08	****	. 80	. 30	12		T.		28	.07	- 60	T.					****	T	1
ndon	Forest																																
d du Lacd River Locks.en Bay	Menominee .	. 13	****	1.70	.76	T.	2.31		****		T.				T.	. 04	T	1.04	T	. 19				T.	T	. 21	T					T	
nd River Locks.	do	1.30	.10	1.46		T.	.84	. 05						. 05	.88	T.	.55		.05	.10	****			.00	.08	.08							
n Bay	L. Michigan.	. 30		1.47	T.	. 44	2.51				T.				. 22	T.	. 05	90	.05	14				. 30	.10	.11					T	T.	1
River	do			.20		. 05	. 65							.04	.02		. 75	. 30	1.	.13	.10	.06	T.	.13		.01					1.		
TA	3-	4 (30)		0 00			4 00		****	****		****	****		000				.00		****	****	****	. 20	. 44	****					****		-1
asha	Fox	.06		1. 29		T.	2.12								.40	.04	.06	. 20	T.				.02	.11	.07	. 10						T.	1
omonee Falls	L. Michigan.	1.36	T.	1.41			.30				· · · ·	.04			.19	T.	T.	T.					. 04	.06	T.	· m	.04				.08	. 03	3
London	Fox	. 85	. 05	1.83		T.	2.50							.01	.24	.10	.20		.12	****		.02	.02	1.	T.	1.	.01				.33	.01	1
nto	L. Michigan.	1 97		1.30	m.	1.74	. 55							90	.14	. 20	. 22						.12	. 23	. 05	10						T.	1
asha. omonee Falls vaukee London to kosh o River n Island.	do	1.65	.01	1.34		T.	1.89	.07			T.		****	. 00	.93	. 05	.79	.04	T.	.06				.08	.10	.10			****				1
River n Island nouth Washington ne no	L. Michigan.	. 40		- 77	. 03		1.90	PED .			. 02							.19	. 05	.06			.18	.36		.70						T.	-
Washington	do	1.20	.02	.96	.06		. 58	1.			.00				.78		.10	Т.	****	. 04			.10	.03	.02	.04	.05	****	****		.02		1
ne	do	2.20		.56	. 44	T.	.11								.16		. 17		· · ·	T.		T.	. 28	T.			T.				. 02	.17	7
ovgan	L. Michigan.	1.49	T.	1.09	Tii	****	1.82	.00	****		****	.04	****		. 40	1.	T.	.08	Т.	.10	****	T.	.03	T.	T.	T.	T						
geon Bay	do	. 67		1.10	****	T.	2.17				T.	T.			.10		. 23	.02	T.	. 04			.06	. 47	T.	. 47	.76					T.	
naca	L. Superior	.08	****	1.94	.18		2 30	04							.05	20	1 37	. 55	08	15				14	97								-
Illinois.	2 0301111111		****					.0.				****				. 20	2.01			. 10													-
	L. Michigan.	1, 22		.39		.01	. 25	T.						т.	. 10		.48	T.			. 21	. 71	.14	T			02				22	.04	4
Indiana.									****		****	****	****	-	.10							.,,	***		****	****	.02					.01	1
urn II	Maumee	. 61	.50		. 22		T.	. 07			. 05					. 41		. 53	T.			T.	. 18					.12			. 03	. 20	0
ie	do	.90	.51		.11	T.	. 03	. 48			. 06				. 22	. 02	.16	. 24 .					.18					.04			.23	.07	7
Wayne	Maumee	1.26	.28	. 02	. 02	т.	.14	.03		.02	.02				.16	.02	.27	. 38 .			.12	12	. 87		.07		04	.08			.07	.31	á
mond	L. Michigan.			1.20	T.		.10	T.							. 33		.70				1.06		.80								. 20	. 05	5
urn	st. Joseph	. 45	.55	.75	.19		.02	.12	.01		. 09		.03			.91		. 67	.01		.01	.51	.96	. 60				.18	.04			.38	8
	L, Michigan.	. 51	. 29	.11	1.05	. 01	. 24								. 24		.73	. 05			. 32	. 64	.78	.02			. 03				. 34		-
chigan — Upper Peninsula.																	-																1
gadand	L. Superior Ontonagon				20		01									·m·		97		T.	·m·	т.											
MeV	Manistique			- 1	Contract to		. 91							****		1.																	1
met	Manistique L. Superior			. 06	. 02		. 26					T.			T.		. 51	. 84	.02		. 07	. 03	T.	T.		. 30	T.	.06		T.			
hamPark	do	.02		.30	T.		. 40				. 20	T.					. 51	. 24	. 09	T.		T.	. 15	. 29		. 18		20	10	. 03		. 20	U
MIT	St. Marys	. 40			2.00		.98				. 15							. 30 .							1.10								
e Harbor	L. Superior L. Michigan.	. 20		. 15	T.	17	1.81				.03				.01			T.			. 02	. 08	****	T.	T.	T.	T.	T.		T.		T.	. 1
n	Ontonagon			. 20	. 10		. 85					T.			. 05		. 15	. 32	. 10	T.	.02	T.		. 05	T.	. 04							
	L. Superior						. 56								T.		.86																-
ghton	do			. 12	T.		. 30					. 04			100		. 91	. 42	.02		. 03	. 03		.04			T.	. 01		T.		T.	1
Mountain	Escanaba Monominee.	.08		. 25	. 28		. 38 1. 98				. 02				. 06		. 18	. 15	. 14						T.	T.							-
River	do	.00		. 50	. 45		2.25				. 02				T.		. 75	. 30	T.	. 65	T.			T.		T.					T.		1
wood	L. Superior			. 25			1.10							T.	. 05			. 60	. 27					.04						T.			
Royale	L. Superior											I.					. 20								. 01				***	Т.			1
e Ridge	Lake Huron	. 43	T.	. 97	T.	. 37	. 62			. 13									. 09	. 31				.76		. 31							
nette	L. Michigan. L. Superior.		T.	. 49	.02	02	1.90	T				.03			T.		. 44	.71 T.	.07	. 21			.03	.10	.02	. 01		T.		.05	T.	.06	8
ominee	Menominee .	. 06		. 71	*****		2. 62 1. 35								. 06	. 13	. 64		. 11					. 52	. 57								
berry	L. Superior Tequamenon	.03		.14	. 09	****	1. 35 1. 10	. 02			.02						. 01	. 60	. 14	. 43			. 23	. 03		. 17		T.		01		. 10	0
ers	L. Michigan.			. 68			. 95										. 66											.01		.01			1
ste. Marie	Lake Huron St. Marys	. 20		. 30	- 17	T.	1.16 .67			. 15	15	.10					07	. 40	T.	.02			. 10	. 70	· m	.30	T.					T.	1
naston	L. Superior	. 15										. 02		T.			. 62	. 50	. 17			Т.	. 39	.16	1.	. 40	T.	.01					1
oria	Ontonagondo	T.		. 12	.02		. 69								. 02		. 52	. 58	. 18	.01	. 03			.10	. 01	T.		T.		T.			
	L. Superior			.02	. 20	. 02	.57				. 20				. 03	. 08	. 95					.01	.10	.05	T.	. 58		.02	. 06				:
chigan—Lower Peninsula.											,								-														
an	Raisin	. 64		. 90							. 77		1				1.04						. 47				14				04	.14	4
	Kalamazoo	. 87		. 34	. 91			. 12									. 41	. 52				.32	. 46	.54	. 11						. 07	. 14	4
	Saginaw	. 90	. 06		. 40		1.50				.14				T.			. 66 .		. 02	. 10		. 85				700	1.5		100	T	. 35	5
a	Lake Husen	61	1	70							- 116)			10000								1111	102			116						T.	
a na Arbor	Lake Huron Huron	. 61 1. 84		. 58	.01		. 65				. 19				T.	. 04		. 61		. 02			.80	. 10	.01	.00	1.	. 10			.04		
na	Lake Huron	. 61 1. 84 1. 85	.06	. 58	. 09		. 65 1. 90				. 19				T.	. 04		. 61 . 51 . 80				.01 .08 .20	. 80	.15			.15	.10			0.5	.36	6

TABLE 2.—Daily precipitation for October, 1911. District No. 4—Continued.

Chatlana	Waterhad	1000							- 20						1	Day	of mo	nth.															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Thatal
Michigan—Lower Peninsular—Con.																																	
rling Rapids	Clinton Muskegon	1. 21	. 03	. 24	. 6		1.13	. 01		••••	.12	. 01						. 71 1. 25 1. 22		.03		T.	. 67	. 01	. 03	.01	. 02	.12 T.			T.	.27	4.
oomingdale	L. Michigan.	1.14	T.	. 60	1.15		. 55								T.		T.	1. 22			T.	. 64	. 13	. 25	T.							.21	
dillacssopolis	Manistee St. Joseph	1			.40	1.80											. 80	.00						.00		. 00						.00	3.
arlevoix	L. Michigan. Kalamazoo.	1 40		. 20	. 35											. 05		.52				T.	. 50	T.								****	4
arlotteebovgan	Chebovgan	. 30		11.00	. 45		1. 20					. 15						. 60				*	. 55	.40									4
nton	Raisin	. 95		1.09	. 35		. 65	. 17			. 10	T.			T.	Ť.		1.00				.08	. 40	T.				. 15			T.	.16	4
dwater	St. Joseph Kalamazoo	1. 10	T.	1.70	.17		. 75				T.							. 45					. 24	T.		T.		. 17			T.	. 22	
troit	Muskegon Detroit	1.30		. 30	1.3		1.12				. 20	. 02						1.34			T.	.08 T.	. 72	. 64 T.		T.	.10 T.	.07			. 05	7.03	7
randst Tawas	Saginaw		255.0																													. 2.	
t Tawasise	Lake Huron	. 50	1	. 95	.10		1. 10	. 03			. 05							. 40		.12	. 16	. 30	. 35	. 10		• • • •	. 10	.05			. 10	4.6	1
nt	Rouge Saginaw	1. 55	.06	. 15	. 2)	. 01				.12							. 50				. 04	. 45	. 07				.08				10	1 3
nkfort	Betsey L. Michigan	1 79		. 65	.2		1.70				. 10							1 60		. 27	94	36	. 50	.12		. 68		. 09			.14	30	1
rlord	Chebovgan	T.		. 40	0 . 6		1.62	T.			. 20						. 50	. 88	T.				. 62	. 26								1.	1
dwin nd Haven	Saginaw Granddo	2 16	. 10	. 60		T.	2. 40			T.										.01	01	39	. 15	. 80			T.	T.			. 33	10	1
and Rapids	do	2.10	. 01	. 42	2	T.	1. 29			T.	.06		T.		T.		. 92	. 29		. 01	. 23	.39	. 34	.17			. 07	T.			. 25 T.	.16	5 (
ss Lake	Raisin	. IU	. 48	. 60	1 .1	5	. 60	. 05			. 33 T.	. 16	. 04		T.		1. 28	. 90					. 66				****	. 12 T.			. 45	22 25	5
yling	Au Sable	59		1.20	.2	6	1.69				. 21							. 54					. 79				T.	T.					
rbor Beach	Lake Huron Saginaw			. 10			1.80											. 98				****	. 00	. 15	****	****						. 30	1
rrisville	Lake Huron	. 09	. 40		0.0						. 05							. 42			. 02	.10	.70				T.	T.			T.	. 15	
t	Pentwater	95		90)		1.50				. 52			. 42	2			. 32	. 20			.18	.28				.60				. 51	. 25	3
yeshland	Huron	1. 35		. 5	.3	5	.72	- 24			. 20		. 14					. 61					. 47					. 24			10	. 27	7
lsdalelland	Huron St. Joseph L. Michigan	1.70	. 50	. 3	3 .3	0 . 20	. 61	T.		. 09	. 01	T.			. 02	.02	.90	. 55			. 08	. 27	. 25	. 53	T.		. 03	.02			.14	.37	
well					9 . 4	0	. 80	.10			1 . 781	1.5		1				. 80					. 30	T.	.02			.04		T.	. 02	40	
nkson	Manistee Grand	94	i ns	. 68			2.05				T.					.04	Т.	. 70					. 20	. 10			1.	.22			T.	2.28	8
do	St. Clair Kalamazoo. Grand	1.09		. 00	8 .3	4	1.00	. 08	5		. 08							. 49					. 75					. 02			40	41	1
amazoo	Grand	1.91	1. 33	7		0	.75	. 80	5		. 10						. 73					. 26	.80	. 16			. 05				. 15	.14	i
asing (Agricul- tral College).		1	1	1			1	1	1	1	1	4		1	. 01		1	47					.38	. 02				OR		1	09	96	
asing (Capitol)	Saginaw			.38			1.00				. 10				01			. 47			. 04	. 16				****		·uo			.02	. 40	6
dington	Pere Mar-			. 68					2									1.00					. 70				. 15	T.					
ther	quette. Manistee	1.02		. 4	9 .4	0	1.95	. 02	2		. 07							1. 23					. 67			. 03	. 02				. 01	. 05	5
ckinaw	Lake Huron	43		. 5	2 .1	5						. 20						. 75		. 18			. 50	. 56		.90	Tr.	. 45				+	1
ncelonanistee	L. Michigan Manistee	1.50)	1. 30	0 .4	0	1.60 2.20	1		1	1		1				1	1.05				****											1
rshall	i Kalamazoo.										·							. 52	· ·			. 20	90				т.				T	10	0
lland	Saginaw Maumee	. 78	118	1.0	3 .1	8	1.10	.00	B		. 06	.01			. 07			1 07	1				. 42					. 13			. 02	. 21	11
unt Clemens	Clinton	. 1.00	0 . 02	2 .2	4 .3	1	1.00	. 0	5		. 02		1					. 09	11				1. 15					. 05	70			. 25	5
unt Pleasant	Saginaw Muskegon			T.	.3	7 . 12	. 50						. 1					. 45	. 11	1. 25		. 20	.10				T.				.30		
Mission	L. Michigan	. :73		1.0	0 . 0	6	1. 65				. 02							1. 10		. 08			. 66	. 30		. 40		T.			14	. 18	
vet	Kalamazoo.	1. 16		. 1 . 8	0		.1 . 80	11			Leves										. 20	.60	. 20	***								* 10	-
away	. Chebovgan.	50)	5	01.0	0	2.30				11	. 10						. 80					.80	. 40		. 35						.36	6
oskey	Saginaw L. Michigan	1	1	4	n . 1	01 . 15	21 . 55	2			1.31	. 26	1 . 4	1		1	. lanca	.37	. 20		.02	. 10	. 40	. 20		. 52							
mouth	Rouge						1. 48	9	0									. 90										10			T.	. 23	3
t Austin	Clinton Lake Huron	.1 . 6	5	.1 .1		5	1.00	1.13	0		.2	. 02	1					. 52				.10	. 75	. 10				. 14	1			. 40	0
t Huron		. 8	3	. 4	5 .0	2	. 78	3			. 05	. 04						1. 21				T.	. 88	T.	.06		T.		5		.13	. 07	
ed Cityseommon	. Au Sable	6	3	2	6 .0	3	1.50)			. 68		1					. 80			Т.		. 70			. 02	2					. 01	1
inaw inaw West Side	. Saginaw	. 1. 5	7	1	0 .2	5	1. 40	T.			1 . 10	H		1	1	1	1	. 56			T.	. 12	. 65								T.	. 33	3
James	L. Michigan	3	2	3	5 .0	8	. 11. 65	5			. 02	0.00	3				. 40	1. 10	.04	. 10		.03	. 20	. 65		. 5	1						
Josephdusky	St. Joseph . Lake Huron	. 8	5 . 0	5 .1	0 .5	0	1.60				06				· T.		. 40	1. 15		****	.06	. 27	.79	T.		***		. 20	0		. 10		5
anac	. Grand	. 2.2	0 . 0	2 .3	5 .4	1	. 1. 33	2			. 13	3			T.			. 45			T.	. 45	.72	. 15							T.	. 30	9
nth Haven	. L. Michigan									0:													1.80				.06				1:1:		-
ornville	. Saginaw	1.8	5				. 3	1			. 20)						. 62										. 0	5			. 91	5
verse City	L. Michigan	5	5	. 5	8 .5	5	. 11. 80	0										. 90				10	. 65	13		. 10	0	T.				1.4	4
sepi	. St. Joseph	. 1. 1	2	. 1. 0	8 .7	5	. 3	5 . 0	6		. 10)					. 12	. 98			. 08	. 28	. 60	-10)			. 06	3		18	. 20	0
st Branch	Lake Huron						21.5	5 0	2				.1					10000							2 .00		7	T.	1				-1
silanti	Au Sable Huron	. 1.0	5 T.	.5	3 .4	0	. 6	7 .0	2		. 2	2 . 0	1			.0	1	. 68	. 01				. 62						3		T.	. 21	5
Ohio.																															1	Î	-
	Lake Pale	0	20 -	0		5		6				1	7 0	5	1	T.	1	04	1. 4	0		01	. 05	1.14				'n	4 0	2		1.4	3
ron nton Ridge	. Lake Erie	1.2	3 2. 7	8 .0	2 .1	7	. 0	2 .8	0		5	2				1	4	.71	. 0	2			. 27					. 02	3		. 0	. 3	15
wling Green	. Lake Erie	. 1.3	1 .2	5 .5	3 .5	5	. 0	2 . 3	5		4	5 . 13 T.	2	5	. T.	0 1	5	2.00				****	. 30					T.			1	. 16	0
eyrusveland (1)	. Lake Erie	1.0	8 . 0	2 . 4	3 . 2	4	1.4	21	0		5	2 . 1:	2				0	1.74	1			T.	. 12					07	7		10	. 30	10
eveland (2)	.ldo	9	31.0	2 .4	8 .1	9	. 1.0	R	8	-	. 4	6 . 17	7					. 76)	8			. 16		1.18				8		. 0.		3
nneautflance	. Maumee	1.5	$\begin{bmatrix} 1 & 0 \\ 2 & 2 \end{bmatrix}$	9 .0	7 .3	2 T.	. 3	5 . 4	2		0	1			. T.		3	. 56)				.33					07	7		0	. 10	6
adlay II	do	1	6 1.5	3		1		8	0		3	2				2	5	. 46	1 . 2	2			. 25		3			. 02	2			. 30	6
emontdges	. Maumee	1.2	0 .7	6 1.3	10 .4	6	. 7	5	3					-			6	. 37	7			****	. 43								2		
llhouse	Lake Erie	1.2	6 1	0 .2	5 .	25	2 .1	5 .9	0		. 33	T.	. 9	0				1. 31	.2	5		****	. 20	T.				. 30	7		· P	. 5:	3
ramdsonma	do	. 2.0	U T.	0 .4	0 .1		. 2	0 . 6	5			T.	. 1		T	0		1. 10				T.	. 22		1.				9		A 4	. 60	5

TABLE 2.—Daily precipitation for October, 1911. District No. 4—Continued.

Stations.	Watershed.				-										I	ay o	of mo	nth.															
Stations.	watersnet.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Ohio-Continued.								-																								in.	
edina	Lake Erie	2. 23		. 63	. 04		T.	.78			.38	. 11						1.09					. 18					.00			T.	. 68	
ontpelier	Maumee	1 52	.38	. 26			. 33	T.			T.		****		. 23	10	. 56	64		****		T.	. 32				****	. 18		07	.06		3
apoleon	do	51	. 42	. 38	.12		. 02	69		****	15	****	****		04	. 10	.40	50			****		34	****		****				. 07	.30	. 19	
ew Bremen orth Royalton	Lake Erie	1 93		. 40	16	. 16		02		****	43	****	20		.01	****	. 40	1 15					16	****		****		16		****			
orwalk	do	1.60	. 14		. 40			75			. 40	****	. 04	1			****	. 95	****				. 29					0			. 05	.32	
berlin	do	1.30	.12		. 12		. 18	. 93		. 10	. 24	.14				. 06		. 90					. 30					.0	3		T.	. 54	
ttawa	Maumee	11.10	1 .39								.32												. 27	T.				. 0	2		. 12		
ndusky	Lake Erie Sandusky	1. 33	. 08	. 57	. 29	T.	1.06	. 01			. 33	. 36			. 05	. 04	T.	. 65			****						T.	.0			. 07	. 05	
Mn	Maumee	2, 10	. 32		10	Т.	. 52	.31		T.	. 43	. 05	****		. 11	. 03	. 15	. 55	T.				. 28	T			.01				. 13	. 22	
pper Sandusky	Sandusky		. 45				. 22			1.		. 1.6			10	05	. 15	1 08				T	. 26	T	****		.01	1.0			T.	. 50	
fekery	Lake Erle	1.35	.17					1.08			.38				.05	. 15		. 55	. 01				. 25					.0			.03		
auseon	Maumee	1. 21	. 20	. 42			. 53	. 02		T.	. 11				. 03	. 14	. 56	. 43				. 04	. 69	T.			T.	. 13	2		. 19		
VauseonVilloughby	Lake Erie	1. 42		.34	. 13		1.01	. 16			. 29	. 17						. 89						. 22				. 2				. 50	
																			1		1												Г
Pennsylvania.																																	
rie	Lake Erie	54	03	. 08	30		. 47				12							1 17	03			T.	95	05				10			04	. 19	1
	Diske Asias.		. 00	.00	.00		. 24				. 10		****	1				4. 14	. 00		****	*	. 20	. 00	****			. 20	1		.01	. 10	ľ
New York.																																	
dams Center	L. Ontario.	. 13	.07		. 41		. 05	. 23				. 07							. 27	T.									. 16	3			1
ltmar	do	. 41			.86	.02	. 60					.05						. 19	. 80	****		. 02	.34		.02			.0				. 65	5
ngelica	Genesee	. 60	.02	70	. 28	. 04	. 22	. 53				. 29		****		. 01		10	. 30		****	****	. 02	.10				1.10			·	- 44	
ppleton	Genesee L. Ontario Oswego Genesee	60		T.	.13	****	. /3	1.	****	****	****	20		****	****	m.	****	.10	40	****			T)	1.	.00		****	T			1.	. 29	
von	Genesee	60	T	1.	20	****	32	05				. 20	****	****	****	T	****	.00	15		****	****	T.					1.			****	46	
lue Mountain Lake	Raquette				. 20	****																										. 20	1
Boonville	Black	55		1	03	.10		79		1				1					OR	12		20		40			100					. 55	1
rockport	L. Ontario Lake Erie Grass	. 40	.01		.14		. 53	.36				. 25		****		. 01		. 23	.73						.19			.0	8			.30)
Juffalo	Lake Erie	. 57		T.	. 22		. 48				. 08	. 05			T.			1.50	.12				.06	. 05				.1			T.	. 41	
anton	Grass	. 28	T.		1.12	. 01	.31					T.						. 07	. 79			T.	.11	. 04	.04			.3	0			. 45	
hazy	L. Champi'n	. 38	****		1 00	· m	****	TO.								****		****	1.80	.20		.12		. 52	****			1				. 22	
annemora	L. Champin do L. Ontario Raquette	05		****	1.00	12	****	16		****	****			****	****	****	****	****	61				01	10	****	****		0			****	. 30	
iba	L Ontario	31	****	****	08	T	25	10	49	****	****	15	****	****	****	****	****	T	49	.00	.00	.01	T	T	07	****		1		*****	****	.32	
aust	Raquette	. 45			1.05		. 45		. 20			. 10			****	****	****		. 41		. 10	.10		.15	.04			1.1	3			. 22	
ayetteville	L. Ontario Raquette Oswego St. Regis	. 48	. 02		.06		. 08	. 22	T.			.18							. 21	.04			T.	. 43			.12					. 40	3 5
abriels	St. Regis	. 30			. 81	.17	T.	.30											. 40	. 02	. 03	.06	. 05	.19				.1	T.			. 35	5 3
Iarkness	L. Champl'n	. 21	.01		- 68	.04	. 03	. 23						****					.77				. 05					.1					
Iemlock Lake	L. Champl'n Genesee L. Ontario	. 02	****	****	1 40		. 79							****		****		. 60	1 10			****	T.	1 00	10		T.						
Iorse Shoe	St Lawrence	25			1. 40	10	. 80	1 83	****	****		****		****	T	****	T	10	48	05		****		1.00	50	****				.05			
Iunt	L. Ontario St. Lawrence Genesee Oswego	. 73			.41	. 13	. 95	1.00		33	****						1.	. 10	. 24	.00		****	. 22		. 00	****				.00		46	
thaca	Oswego	. 55	. 01	.03	.43	T.	. 50	. 03		. 00		.37	.02		****	.05		.07	. 43	T.	. 02		.36	.04	****			.10)			. 20	
Ceene Valley	Ausable		. 12		. 34	. 15	. 12	. 20											1.40				. 64					.2	0				
Cing Ferry	Oswego	. 54			. 15		. 54					.30	T.					T.	. 43					. 18				.0	8			. 33	3 3
ake George	L. Champl'n	.51	. 03		. 67		. 51	. 23				T.	T.						2, 31	- 77	. 11		.06	. 61				.0	3	.22	.36		. 13
ake Placid Club	Ausable W.	. 46			. 81	. 09	. 35	. 23				****	T.			****			. 26	. 05	. 07		. 05	. 04	. 09			.3	. 10	. 22		. 27	7
eisers Mill	Branch. Biack	. 42			1 00	40	. 45	98				02							1. 69			90	.10	60	00		90					40	1
e Roy	Genesee				25	. 46													-	10000											****	97	
oekport	L. Ontario.	. 49			. 20	.07	.48	. 23				. 21						. 20	. 60				.06	.03	.01			1	7			.40	
owville	Black	. 50			. 60	.10	. 44			T.										. 67				. 50	.10			.10	1 1	1		20	
foira	St. Lawrence	. 12			.70			. 35											. 43		. 04			. 12				.2	T.			.37	7 3
ehasane	Black						. 40	. 24				T.							. 43	. 01	. 04	.04	.02	. 35				.2	7 T.			. 52	2
North Lake	do	40	****				70					****		****	****	****					****	****	****	****	****								-
gdensburg	L. Ontario St. Lawrence	20	****	.00	10	T	. 70	20	****	****	. 08	T		****		****		. 20	. 90	. 14	. 02	193	.10	10	10	****		. J			.30		
dd Forge	Black	38	.06	****	.10	98	30	36	****	****	01	1.		****		****		****	81	09		.06	10	62	.10	****		1	7			.38	
ewego	L. Ontario	. 39			. 66	T.	. 48	. 02				.11						. 34	. 59		T.		. 08	. 01				l.i				. 24	
)tto	Lake Erie	. 1 . 2039	. 120	Manage and			1. (K)	. 50				. 15	T.				.08	.70	. 15				. 53	. 02			. 20	. 4				. 35	
alermo	L. Ontario		1		. 10		. 20			1		. 50		Lucia -				. 500			- 16		.30					.2	0			T.	
erry City	Oswego St. Lawrence Raquette do Genesee	. 60	.05		. 20		.14	. 50				. 44				. 02			. 40		T.	****	T.	. 20				.1	5			. 50	13
hiladelphia	St. Lawrence	. 24	. 02		1.01	. 07	. 34	. 35				. 03							. 71	****		.04	. 02	. 19	.17			.1	.03	3	****	. 41	13
otsdam	do	43	. 28		1 16	97	41	.37				****		****					. 00	.12		18	.08	. 03	.10	****	.05				. 12	***	B
Raquette Lake Lochester Lomulus	Genesee	34		T	20	.21	63	01		1		20			****	01	****	47	10	. 00	****	. 10		m.	01	****	****	.0			T	95	
Comulus	Oswego	.68	.12	4.	14	****	. 18	.14		****	. 00	37			****	. 01	****	T	. 11	****			T	06	.01			0	8		1.	14	1
cottsville	do	.70					. 80				.32		****				****	.36				****		. 05			. 12				.32	.07	1
HOFESVIIIC	do	. 34	. 02		. 10		. 32	. 32				. 20				. 02		T.	. 28				T.	. 05				.1	2			. 38	
kaneatelesyracuse	do	. 64	T.		. 25	T.	.16	.38						. 26				T.	. 24	. 05	T.		. 10	.15		. 01	.17					. 22	4
yracuse	do	. 44	. 02		.11	T.	.44	.03				.14				T.		. 01	. 46	T.			. 18	T.				.0	7 T.			.26	4
lconderoga	L. Champl'n Raquette	.30	.10	****	. 25	.01	****	. 15				****	T.						1. 25	.38	. 05	****	T.	****				.0	2			. 05	1
olusia	Lake Erie	770		т.	1.05		. 07	. 45				***	****					00	.41	T.	.10	.10	T.	. 15	703			.1	. 04			. 22	1
Vanakena	Oswegatebie	39	. 03	1.	02	10	40	10	****	****		. 10	. 02				****	. 20	- 50	7			. 19	.10	10	****		1.2	*			. 12	4
Vards Creek	Raquette	50		1.00	. 59	. 10	30	. 10		****	****	****		****		****	08		. 40	.07	.07	97	. 55	. 20	.10		04	.1				. 54	
Vatertown	Oswegatchie Raquette Black	.20			. 04		, 24	.33			****	T.					. 90		.48	.02		. 21	.02	.18	.08		.01	1 .1	2 7			41	
Vadgaggad	Uswego	. 87	. 04		. 45	. 05	. 40	. 34				. 57							. 47	. 02			. 03	. 14				. 1	3			. 31	
Vestfield	Lake Erie																	. 29	. 51				. 27	. 55								. 49)
oungstown	L. Ontario.	. 55		****			. 75					.30		****				. 20										-1	9			.51	
Vermont.																													-				1
Burlington	L. Champi'n	. 20			. 66		.17	. 04					T.						1.10	.04	T.	T.	.14	. 28				.0	8			. 15	5
ornwall nosburg Falls forthfield	do	. 40			.75		. 35												2.05	. 05				. 04				.0	2			.55 .40 .12	
nosburg Falls	do	. 06			. 58	. 21		T.					. 05						.77	. 05	. 01	T.	T.	. 51	.02		T.	1.1	4 .00	2		. 40	1
orthneid	do	. 46	.06		. 62	. 13	.17	. 09					. 02					T.	1.72	. 35		T.	. 07	. 07				. 0	8			.12	2
	UJ	60 .	. 19		- 31	Description of	100000																										

^{*} Precipitation included in that of the next measurement.

‡ Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 4, Lake Region.

	Dul	-43			Wiseo	nsin.			Chi		Fo	rt				U	pper M	ichiga	m.					Lo	wer M	chiga	n.	
ate.	Mir	nn.	Flore	ence.	Green	Bay.	Milwa	ukee.	Chic	ago, L	Way		Escar	aba.	Ew	en.	Houg	hton.	Marq	uette.	Sault		Alpe	na.	Bat	ile k.	Cadu	ilac.
* 11	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.																
	54 53 56 53 48	46 46 45 37 37	58 58 52 54 47	44 45 40 41 29	59 60 63 60 50	49 50 50 41 36	57 57 70 63 54	54 54 53 49 43	64 59 79 71 56	54 54 54 52 51	70 55 76 71 56	51 49 46 50 43	54 56 57 58 48	48 49 50 40 37	60 59 58 50 48	40 36 39 40 25	58 52 60 60 50	42 47 46 39 34	54 54 56 57 49	46 45 44 40 40	55 56 53 56 48	43 40 39 39 36	54 55 60 60 49	50 48 50 44 40	56 61 58 69 54	51 48 48 54 54	52 54 53 65 51	48 46 46 35 35
	47 58 66 63 56	39 34 40 42 39	45 54 63 66 60	38 40 33 37 39	49 55 63 62 58	45 43 41 43 49	64 55 59 60 61	49 46 44 48 54	77 54 54 60 65	52 50 50 54 57	80 54 60 62 63	48 41 39 44 52	46 57 62 60 59	42 40 38 42 45	- 48 55 64 71 65	35 38 34 34 32	46 53 62 62 61	41 42 44 46 39	45 52 70 63 59	39 40 44 48 47	44 54 60 70 58	38 34 34 37 41	46 52 64 64 55	43 35 33 41 41	66 54 61 61 60	48 43 33 37 51	8 3 9 3 58	4 3 3 4 4
	64 62 48 49 52	44 45 45 46 46	65 65 58 55 59	45 37 29 44 46	64 63 58 56 60	49 44 42 41 51	62 66 60 58 61	52 52 52 52 55 51	63 64 63 62 62	53 54 56 54 50	65 66 61 63 67	50 44 46 45 42	60 60 55 55 55	48 42 44 52 45	65 63 60 55 56	34 30 29 36 36	60 55 57 53 61	50 40 39 46 47	60 54 55 53 57	48 44 38 45 47	54 64 55 57 59	47 42 34 38 39	59 60 54 55 59	42 42 39 37 36	63 66 61 67 65	50 48 43 46 50	50 54 61 58 56	4 2 4 4
	49 57 52 49 44	45 43 40 35 37	57 58 57 58 58 55	46 49 37 37 29	67 62 65 56 54	52 47 45 42 38	66 62 67 57 57	57 52 49 48 45	74 64 67 56 56	59 54 51 51 49	77 65 65 69 59	52 47 42 45 48	61 60 60 58 56	50 47 41 42 35	60 58 54 54 54 50	38 36 33 33 34	56 56 58 52 50	47 48 38 44 40	60 60 58 58 49	48 46 44 42 39	58 58 57 58 56	40 41 34 41 40	58 62 76 55 59	41 43 42 48 45	73 66 65 65 54	40 54 41 45 46	66 83 64 59 57	
	42 41 39 45 37	30 27 29 27 26	47 44 40 45 45	29 30 32 26 32	50 49 45 46 45	37 38 34 30 35	51 50 45 49 50	42 41 37 33 38	52 51 48 54 57	44 39 40 36 46	49 48 48 54 62	45 37 35 31 40	52 45 43 48 41	35 39 35 29 33	47 45 42 47 43	30 24 26 24 26	46 44 42 46 39	39 36 35 36 32	51 44 43 48 40	35 37 36 32 32	54 45 41 49 44	38 41 36 34 33	57 48 47 51 52	45 39 36 34 43	50 47 44 53 60	45 39 38 36 40	56 52 44 42 43	
	36 37 45 46 31 34	19 22 20 22 17 16	34 38 43 49 39 34	22 20 21 34 19 25	35 40 44 53 43 35	29 24 27 33 35 31	41 42 45 53 46 43	30 28 29 33 38 34	49 42 48 52 47 48	35 32 38 36 41 38	53 42 47 51 46 49	39 33 30 29 36 41	36 40 46 52 36 36	26 25 24 32 27 29	38 37 45 44 31 35	24 21 20 31 17 14	34 37 45 44 34 34	31 28 33 29 25 23	35 38 49 45 33 35	27 29 25	39 37 46 44 34 35	27 28 28 26 21 26	47 42 48 55 37 36	28 33 32 34 27 32	41 46 52 50 45 43	33 26 34 31 34 39	42 37 43 49 45 37	
ns	48.8	35.0	51.7	34.7	53.7	40.7	55.8	44.8	58.6	47.9	59.8	42.6	52.1	39.1	51.8	30.6	50.5	38.9	51.1	39. 1	51.5	36.0	53.8	39.2	57.3	42.5	18.7	3

		L	ower M	lichiga	n.					Oh	io.									New	York.					Verr	nont.	
Date.	Det	roit.	Musk	egon.	Sagir West	naw, Side.	Cleve	land.	Lir	na.	Sand	usky.	Tole	do.	Erie,	Pa.	Buff	falo.	Can	ton.	Roch	ester.	Syra	cuse.	Buri		Nor fiel	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	54 58 65 69 53	51 48 49 48 43	55 58 55 66 60	50 50 42 52 48	52 58 55 69 52	49 49 40 51 35	59 57 68 72 52	52 50 47 52 48	67 68 68 60 60	53 45 58 40 43	61 58 70 73 54	52 54 46 54 47	59 56 71 72 54	52 49 48 51 43	57 57 65 73 52	49 47 43 52 47	50 56 61 67 52	46 44 38 50 44	50 54 55 78 54	41 36 27 49 39	50 55 59 75 52	47 49 40 48 44	50 58 60 78 52	44 44 37 48 43	48 54 54 64 56	34 40 28 46 40	49 55 55 65 56,	29 31 24 36 38
6 7 8 9 10	60 51 58 60 58	45 41 39 48 51	50 56 60 65 60	42 34 36 44 50	49 52 62 64 57	45 42 32 35 44	75 52 55 62 56	48 44 38 44 51	80 72 57 63 67	48 40 38 54 47	79 55 58 60 58	49 45 42 46 52	78 51 57 59 59	47 42 41 45 51	61 49 56 60 68	47 41 39 41 50	50 49 57 61 71	39 39 41 49 46	45 50 57 63 67	31 34 52 43 39	50 48 59 65 72	40 38 34 40 44	48 32 56 63 70	36 36 37 46 43	45 46 54 62 67	32 30 29 42 37	45 48 54 61 68	30 27 22 34 29
11 12 13 14 15	62 65 59 60 67	52 46 45 47 51	60 62 64 60 68	48 45 43 48 54	63 69 60 58 70	45 42 37 41 47	60 57 55 63 61	49 54 46 45 52	62 60 58 59 67	41 45 41 42 54	62 59 58 63 64	50 47 47 43 49	64 65 58 58 69	49 47 43 46 50	59 59 55 61 65	54 50 42 40 53	58 63 55 65 64	52 51 44 41 54	58 63 52 60 65	43 41 34 32 39	56 63 52 63 67	53 48 40 -37 52	59 61 49 64 61	53 45 38 39 51	57 66 52 58 63	42 43 39 31 43	60 65 49 60 64	33 41 35 27 31
16 17 18 19 20	70 63 62 67 60	52 54 50 50 49	75 68 62 60 57	53 54 40 50 45	71 63 67 65 55	47 54 41 43 46	72 64 57 62 62	49 55 49 44 47	71 68 57 64 60	49 55 40 40 41	74 67 60 67 61	52 55 49 46 48	74 65 64 68 59	51 53 49 47 49	64 64 58 62 67	47 54 47 43 47	68 66 60 64 67	52 52 52 44 49	63 68 57 61 68	44 42 53 48 55	60 66 60 65 09	47 52 48 41 45	60 63 55 58 64	45 55 52 50 57	63 61 54 60 63	37 44 49 48 53	65 49 48 55 50	29 34 46 46 50
21 22 23 24 25	53 55 47 52 58	49 41 39 39 45	56 52 52 50 55	42 40 43 40 40	50 49 46 51 60	45 42 37 37 42	57 60 50 50 50 62	53 42 40 39 41	56 52 44 45 55	41 41 35 31 36	56 58 50 54 63	53 39 38 35 41	52 54 49 53 62	48 38 37 34 41	63 66 54 51 64	54 45 41 40 40	65 65 56 51 61	50 48 42 42 42 44	64 67 53 52 56	56 50 41 37 37	71 65 57 52 62	54 47 44 39 36	63 64 54 51 58	56 49 44 39 38	60 66 56 50 53	53 53 39 34 32	53 60 58 51 53	49 49 32 28 25
26 27 28 29 30	43	41 34 32 33 37 38	45 45 45 44 50 44	33 30 32 31 35 36	46 42 46 52 45 42	31 30 27 31 32 38	51 49 44 50 49 54	48 40 36 34 37 45	48 50 44 43 47 52	38 36 28 27 31 45	50 47 47 51 48 51	46 39 35 32 38 43	50 43 48 52 48 47	39 34 34 33 37 38	51 46 45 49 50 55	44 87 33 36 42 41	53 43 45 50 51 51	42 35 33 40 40 37	51 38 41 47 46 39	37 28 24 37 28 32	49 42 45 51 51 50	42 33 28 34 39 38	50 41 43 51 51 57	40 36 29 35 42 36	48 38 42 49 48 47	38 31 25 32 34 33	57 40 42 50 48 48	30 29 19 21 36 36
Mns	57.0	44.7	56.7	42.9	56.1	40.5	58.0	45.8	58.8	42.0	59.2	45.5	58.6	44.1	52.3	44.7	57.9	44.5	56.0	39. 0	58.1	42.6	56.9	43.3	55.0	38.4	54.8	33.1

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
 Data are from standard instruments not supplied by the United States Weather Bureau.
 Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

GENERAL SUMMARY.

The month was considerably cooler and much wetter than usual, with a large excess of cloudiness and an absence of Indian summer weather that so frequently prevails in this section of the country during October. The first half of the month was generally warm with much more than the usual amount of rainfall, and especially during the first six days, when the rainfall was above the normal in all sections, and was excessive in portions of Minnesota, Wisconsin, Iowa, Missouri, and Illinois. Another rainy period extended from the 12th to the 18th, during which time the precipitation was considerably above the average for that season of the year. From the 22d to the 27th light showers were frequent in the southern and showers or snow flurries in the northern section. The first snowstorm of the season of any importance in the central section occurred on the 26th. The warmest days were the 3d, 6th, 11th, and 12th, when the maximum temperatures, on one or more of those days, were up to or above 90° in the extreme southern portion of the district, between 84° and 89° in the central, and above 70° in the northern section. Freezing temperatures occurred in the northern States on one or more days during the first half of the month, but the first killing frost did not occur in the central sections until the 22d or 23d. The last decade of the month was cold, the lowest temperatures being recorded between the 28th and 31st. ing and harvesting were greatly delayed in North Dakota by cloudiness, stormy days, and fogginess, and in the southern sections the excessive moisture was injurious to corn in shock and delayed corn husking, but it was beneficial for starting the growth of fall-sown grain, reviving pastures, and replenishing the water supply. The killing frost on the 22d and 23d did little or no damage, as all staple crops were matured, but the freezing weather later in the month injured potatoes remaining in the ground. There were no severe or damaging storms.

TEMPERATURE.

The average temperature was below the normal in all sections, the departures ranging from -0.7° in North Dakota to -4.4° in South Dakota. The deficiencies were, however, due to low day temperatures rather than to abnormally low minimum temperatures. The highest temperature recorded in Minnesota during the month was 76°, which is 4° lower than the monthly maximum for October during the 17 years of record in that State. With the exception of a few days in the northern part of the district, the first half of the month was warm. Freezing temperatures occurred in the extreme northern part of Minnesota, from the 5th to the 9th, and as far south as northern Iowa on the 8th; but killing frost did not occur over central and southern Iowa, northeastern Missouri, and the larger part of Illinois until the 22d or 23d. The last decade was cool, although the minimum temperatures were not unusually low in any part of the dis-

trict. Except in Missouri, the coldest days were the 28th, 29th, and 31st. The monthly mean temperature for the district, as shown by the records of 281 stations, is 47.6°, which is 2.1° below the normal. The highest mean monthly was 60.6°, at Cobden, Ill., and the lowest, 38.2° at Hannah, N. Dak. The highest temperature reported was 92°, at Mascoutah, Ill., on the 6th, and the lowest, 6°, at Hannah and Willow City, N. Dak., and Fort Ripley, Minn., on the 31st. The monthly mean and departure from the normal for the respective States in the district are as follows: North Dakota, 42.5°, -0.7°; Minnesota, 43.6°, -2.7°; South Dakota, 43.4°, -4.4°; Wisconsin, 45.3°, -2.3°; Iowa, 48.7°, -2.9°; Missouri, 55.3°, -1.2°; Indiana, 52°, -1.4°; Illinois, 53.2°, -0.9°.

PRECIPITATION.

The precipitation was above the normal in all parts of the district, and nearly all of it was in the form of rain, the snowfall being nil in the southern and light in the northern sections. General rains fell from the 1st to the 6th, being heavy to excessive in many localities on the 3d and 6th. Another rainy period prevailed over the larger part of the district between the 12th and 22d, which was followed by scattered and generally light precipitation on several days during the remainder of the month. The rainfall was heavy to excessive in portions of Minnesota, Wisconsin, eastern Iowa, Missouri, Illinois, and Indiana between the 1st and the 6th, the heaviest being in Minnesota and Wisconsin, where it caused high stages in all rivers, which were further augmented by the heavy rains between the 12th and 16th. In most of the southern counties of Minnesota the rainfall was the heaviest ever recorded. This was particularly true of eastern Brown County, southern Dakota, Wabasha, Goodhue, Rice, Waseca, Steele, Dodge, Olmsted, western Winona, and northern Mower Counties, where the rainfall was more than 8 inches. In general, there was an express of from 2 to more than 6 inches in the southern excess of from 2 to more than 6 inches in the southern half of the State. Mr. C. F. Greening, cooperative observer, Grand Meadow, Minn., reports that the total precipitation for 1911, to October 31, at that place, amounting to 46.63 inches, exceeds all records for 27 years for the whole year. Eau Claire and Stanley, Wis., report 10.35 inches and 10.02 inches, respectively, for the month. The first and only snowfall of any consequence in Iowa and Illinois occurred on the 26th, and that was confined principally to the northern counties. The average precipitation for the district, as shown by the average precipitation for the district, as shown by the records of 311 stations, is 3.81 inches, which is 1.51 inches above the normal. The greatest amount, 10.35 inches, occurred at Eau Claire, Wis., and the least, 0.13 inch, at Edmore, N. Dak. The greatest amount in any 24 consecutive hours, 4.27 inches, occurred at Redwood Falls, Minn., on the 5th-6th. Measurable precipitation occurred on an average of 10 days. The average amounts and departures from the normal for the several States or parts of States in the upper Mississippi Valley, are as

follows: North Dakota, 2.24 inches, +0.42 inch; Minnesota, 4.13, +2.62; South Dakota, 3.70, +2; Wisconsin, 6.02, +3.45; Iowa, 3.43, +0.98; Missouri, 2.93, +0.71; Indiana, 5.09, +3.07; Illinois, 2.86, +0.59.

SUNSHINE AND CLOUDINESS.

The average number of clear days was 11; partly cloudy, 7; cloudy, 12. There was less sunshine than is usual in October.

WIND.

Northwest winds prevailed. The highest velocity reported was 48 miles an hour from the east at Minneapolis, Minn., on the 6th.

RIVERS.

The heavy rains during September and the first six days of October caused unusually high stages in the rivers, and especially the smaller streams, in Wisconsin, Illinois, eastern Iowa, and northeastern Missouri. Much damage was done to dams, mills, and crops by the floods on the Wisconsin, Black, and Chippewa Rivers, and there was considerable damage done to crops in Illinois. nois, southeastern Iowa, and northeastern Missouri. The Wisconsin River flood was the most serious on that river since October, 1900, and with that exception the water was the highest in 30 years. The Mississippi River from Dubuque to La Crosse was the highest since July, 1908. The river rose steadily at all stations in the Davenport district during the second decade of the month. While the high water was unusual at this season of the year, the crest of the rise was everywhere considerably below the flood stage, and no damage of any consequence was reported. At Keokuk the river rose steadily after the 13th, and by the 17th work on the Illinois division of the Mississippi Water Power Dam was suspended, as the river flooded the cofferdams. The floods and high water in central Illinois caused much damage. Bridges and culverts were carried away and damage. Bridges and culverts were carried away and railroad embankments were washed out. At Vandalia, on the 4th, the Kaskaskia River had reached the highest stage ever known. Breaks occurred in the levee and much land was inundated. The Illinois River at Beardstown overflowed its banks. Mr. S. P. Peterson, official in charge, local office, United States Weather Bureau at La Salle, Ill., reports that the average flow of the Illinois River was the highest for any October in the seven years' history of the station. The river was above the flood stage from the 3d to the 10th, inclusive, but there was very little damage done in the bottom lands by the flood.

Mr. Montrose W. Hays, district forecaster, St. Louis, Mo., reports:

The stage of the Mississippi River was higher than normal, and the high stage seriously interfered with the work on the "free bridge." At one time it was thought that all the false work would be washed away, and all work of construction was suspended and every effort was made to protect the work. The channel scoured 19 feet, and it took many carloads of sand and stone to prevent a complete washout.

WISCONSIN RIVER FLOOD OF OCTOBER, 1911.

By J. H. Spencer, Local Forecaster, Dubuque, Iowa.

The Wisconsin River flood of October, 1911, was the most serious on that river since October, 1900, and with that exception the highest water in 30 years was experienced. The losses to dams, mills, crops, etc., amount approximately to \$300,000. It is probable that property

saved as the result of flood warnings exceeded the losses.

Less damage occurred below Wausau and vicinity than during October, 1900, although there was very

little difference in the stages of the two floods, as shown by the following table:

	Highest	stage-
	October, 1900.	October, 1911.
Wausau, Wis	Feet. 1 11. 2 1 14. 2 12. 2	Feet. 11. 2 13. 6 12. 9

River gauges were not maintained at Wausau and Grand Rapids in October, 1900, but the stages were obtained a year or so ago with reasonable accuracy from reference marks on the foundation walls of buildings.
 Or slightly over.
 There were no breaks in the levees this year, while in October, 1900, the water broke through and flooded lowlands. This fact undoubtedly explains the difference in the stages of the two floods at Portage.

CAUSES OF THE FLOOD.

In September, 1911, the average rainfall for the Wisconsin Valley from Portage to Rhinelander was about 5.98 inches, or 2.56 inches above normal. This exceptionally heavy rainfall thoroughly soaked the ground, and raised the rivers of the upper Wisconsin River system to rather a high stage for September. There was, in fact, considerable uneasiness in the vicinity of Wausau because of high water at the beginning of October. Then came the extremely heavy rains of the first 6 days of October, which gave the following amounts:

	Inches.
Rhinelander	4.34
Merrill	5. 05
Wausau	5. 52
Stevens Point	4.27
Grand Rapids	4.24

About one-half of this amount fell in 12 hours on the night of the 5th-6th, Wausau reporting 2.55 inches and Rhinelander 2.80 inches at 7 a.m. of the 6th.

As the result of these rains, the Wisconsin River at Wausau rose from 6.7 feet at 7 a. m. of the 5th to a crest of slightly over 11.2 feet at 2 a. m. of the 7th; at Grand Rapids from 8 feet at 7 a. m. of the 6th to 13.6 feet at midnight of the 8th; at Portage from 6.9 feet at 7 a. m. of the 6th to 12.9 feet at 6 p. m. of the 11th.

DAMAGE AT WAUSAU AND VICINITY.

The excessive rainfall that was the immediate cause of the flood at Wausau fell during the night of the 5th-6th, and within 18 hours from the time it ceased the flood crest at Wausau was reached. On the morning of the 6th, immediately upon learning the amount of rain that had fallen during the previous night, a flood warning was telegraphed to the mayor of Wausau. Warnings were issued later in the day for Stevens Point and other cities and towns southward to Portage.

About 11 o'clock on the morning of the 6th the east gate of the guard lock at Wausau gave way, and early in the afternoon of the same day the top section of the dam at Kelly was carried down the stream. These two breakages were in large part the cause of much of the damage at both Wausau and Rothschild. When the guard lock broke, the mill of the Alexander Lumber Co. was flooded, and this firm sustains a loss of about \$6,000. The Wausau Street Railway Co. reports damage amounting to about \$2,000, and there were a number of minor

By far the greatest damage on the Wisconsin River was sustained by the Marathon Paper Mills Co., of Rothschild, a few miles below Wausau. The damage to

this property is given in the following letter from Mr. D. C. Everest, secretary and manager:

It is not possible for us to give a close estimate of our loss at the present time (Oct. 21, 1911), but presume it will reach about \$150,000. We still have high water, and it is impossible to investigate the conditions around the end of our dam to know just what shape the main structure is in. There was no failure of the dam itself, but we were compelled to blow out the west bank of river around the end of dam in order to save the mill buildings, due to the clogging of our gates with refuse which came down the river soon after the breaking of the guard lock at Wausau and the carrying away of the slash boards at Kelly.

The town of Schofields was flooded, and damage to residences, etc., amounted to several thousand dollars. Above Wausau the damage was not great. At Merrill it amounted only to about \$500.

FROM STEVENS POINT TO KILBOURN.

The damage at Stevens Point was small, and it will cost the city only about \$200 to repair roads and bridges. Water surrounded a number of homes, and cellars were flooded. The chief loss to the mills was owing to the necessity of closing down for a day or two. In the surrounding country much damage was done to crops and roads, Postmaster D. E. Grost estimating the losses at about \$10,000. A young man by the name of Isadore Cvik, living 14 miles north of Stevens Point, was drowned while attempting to rescue cattle from the flooded fields.

Relative to the warnings of the Weather Bureau, Mayor F. A. Walters writes:

The millmen, and others as well, certainly took special precautions because of your timely warnings * * * and all assure me the efforts in their behalf were appreciated. * * *

At Grand Rapids the water rose to a crest of 13.6 feet. The losses, nevertheless, amounted only to a few thousand The city authorities made every effort to keep the water off the business streets, and they succeeded. Merchants lost much less than in October, 1900, because they removed their goods from basements well in advance of the flood. The greatest single loss at Grand Rapids was about \$2,000 by the Consolidated Water Power and Paper Co., owing to the necessity of replacing timbers in the sluiceways and along the spillways of the dam and for other repairs. The manager, Mr. George W. Mead, writes:

The water companies suffered very little loss in this locality on account of the flood. We were all warned well in advance, and were able to make preparations to pass the water through our dams. None of us suffered at all on account of the dams. We had no damage whatever to milling property. We wish to thank you for your thought and promptness in notifying us of the coming high water.

Crop losses in the vicinity of Grand Rapids were several thousand dollars. There was no loss from Nekoosa to Kilbourn, except to crops on lowlands. Mr. L. Kleimenhagen, of Kilbourn, states that the warnings of the Weather Bureau gave the people located on the lowlands a chance to save a good deal of their property.

Postmaster T. H. Marshall, of Kilbourn, writes on

October 29, 1911:

I have made considerable inquiry about the damage to farmers by the recent floods in this vicinity, and on good advice I set the amount at \$25,000, vicinity meaning halfway to the next town both up and down the river. This does not include the damage to the dam here, which is considerable—possibly many times the above amount.

THE FLOOD AT PORTAGE.

The river at Portage rose to 12.9 feet, the highest ever known there. This was due, however, to the fact that there were no breaks in the levees. The volume of water was just about the same as during the flood of October, 1900, while it was slightly greater than during the flood of June, 1905, and considerably less than during the floods of 1880 and 1881.

It was, however, only by the hardest kind of work upon the part of city officials and the members of the State levee commission, with their assistants, who worked night and day for several days, that the losses in the city were trivial. The tracks of the Chicago, Milwaukee & St. Paul Railway Co. were washed out, but only for a distance of about 200 feet; repairs were made at a cost of only \$150 for labor and the use of 40 carloads of cinders. The estimated loss to crops on lowlands in the vicinity of Portage is \$8,000.

Relative to the flood and the warnings of the Weather Bureau, Mayor M. J. Downey says:

I have received your many telegrams and communications relative to what we might expect in regard to the flood raging on the Wisconsin River. * * * We managed to handle and control all the water passing through this locality, but it was only by giving our levees strict and undivided attention throughout the raise of the water. * * * We people here in Portage believe that we are similarly situated with the people of Black River Falls, for if the locks in the canal at the Wisconsin River should ever give way it would be impossible to save any great portion of our business section. * * * I desire to personally and sincerely thank you for your vigilance in keeping us informed as to the conditions we might expect, and it was certainly through your efforts that we were able to effect the results which fortune seemed to favor us with. which fortune seemed to favor us with

Under date of October 30, 1911, Postmaster T. J. Welks, of Portage, Wis., writes:

Had it not been for your timely warnings the river would have broken through the levee in many places, and the loss without doubt would have reached \$500,000 in this locality, to say nothing about the enormous loss all down the Fox River Valley. It was by the most strenuous efforts by the city officials, levee commission, and railway company that the river was kept within its banks. The citizens of this locality owe the Weather Bureau a debt of gratifulde for the accuracy of its force. owe the Weather Bureau a debt of gratitude for the accuracy of its forecasts and the timely warnings.

LOSSES BELOW PORTAGE.

The losses below Portage, amounting to \$10,000 or more, were confined almost exclusively to crops on lowlands, except at Prairie du Sac, Wis., where the Wisconsin River Power Co. is building an immense dam. Under date of October 19, 1911, Mr. R. G. Walter, resident engineer of this company, stated that the water continued so high that it had been impossible to estimate the amount of damage.

The following extracts from letters received from postmasters of towns below Portage are of especial interest:

Prairie du Sac: Your timely warnings were well heeded, especially by local authorities in guarding the bridge approach and by business men in removing stocks from their cellars. Farmers saved considerable hay; about 20 or more stacks were damaged or destroyed.

Lone Rock: Some of the hay men took advantage of the warning and caved most of the grap. Others carried to think it would not be much

saved most of the crop. Others seemed to think it would not be much of a flood and lost; about 300 tons were lost; value, \$3,000.

Boscobel: Farmers had ample time to get everything out of lowlands, but some did not do it; one piece of corn of 20 acres was carried away.

Warnings were issued to all towns below Portage on October 8.

SECOND FLOOD, WISCONSIN RIVER, OCTOBER, 1911.

A second flood occurred on the Wisconsin River in October, 1911, beginning on the 17th, but it was not of very great importance. It was caused by heavy rains in northern Wisconsin from the 14th to the 16th, inclusive. At Rhinelander, Wis., for instance, the rainfall was 3.79 inches during the period mentioned, and 1.61

inches of this amount fell during the 24 hours ending at 7 a.m. of the 17th.

The highest stage at Wausau was 8.4 feet on the afternoon of the 17th, the highest at Grand Rapids was 9.4 feet during the daylight hours of the 19th, and the highest stage at Portage was 10.9 feet throughout Sunday, the 22d.

A WORD AS TO FUTURE FLOODS.

The great floods of the past on the Wisconsin River will be duplicated in the future—but when, no one knows. Popular notions that the destruction of forests, the cultivation of the soil, etc., have materially altered climatic conditions are erroneous. As in the past, the floods of the future depend almost entirely upon the distribution and amount of precipitation.

Towns and cities in the Wisconsin Valley are growing in size and importance. Property subject to damage during floods is increasing enormously. Immense dams are converting portions of the river into great artificial lakes. These are among the reasons why localities that are subject to damage should guard against it by frequently inspecting and repairing levees, guard locks, etc., during periods of low water.

HIGH WATER FROM DUBUQUE TO LA CROSSE.

The rainfall at the headwaters of the Mississippi River was about the same as already stated for the upper Wisconsin Valley. For instance, the September rainfall at St. Paul was 5.27 inches, or 1.85 inches above the normal. This amount was followed by 5.58 inches during the first six days of October. Similar conditions also caused the severe floods on the Black River.

As the result of these conditions the Mississippi River from Dubuque to La Crosse was the highest since July, 1908. The rise was further increased from Dubuque to Prairie du Chien by the flood from the Wisconsin River, and also by a general rain from October 13 to 16, which gave from 2 to 3 inches from Prairie du Chien to north of La Crosse.

At Dubuque the river rose from 3.6 feet on the 2d to 14.6 feet on the 18th and 19th. This rise of 11 feet has never been equaled during any October since the station was established 38 years ago, although during two previous Octobers the maximum stage was higher.

The highest water was about 3 feet below flood stage both at La Crosse and Dubuque. Warnings of the approaching high water were nevertheless given through the newspapers and The Daily River Bulletin, marked copies of which were sent to postmasters.

Nearly every postmaster from Dubuque to below La Crosse reports damage to crops, particularly hay, which was cut and stacked, and the losses may reach \$100,000. Owing to a long period of low water, lasting several years, lowlands and islands were cultivated this year to an unusual extent, and this fact explains the heavy loss. The amount of crops saved after warnings were given probably exceeded the amount lost, but in many instances the heavy rains which preceded the floods for a number of days or weeks made it impossible for farmers to get into their fields.

From among the many letters received relative to the high water in the Mississippi River the following extracts are taken:

Postmaster Charles P. White, Stoddard, Wis.:

The damage by recent floods in this vicinity is wholly in bottom lands of the Mississippi. Estimated loss of hay, 3,000 to 4,000 tons, valued at about \$30,000. Quite an amount was saved by farmers having available flats to float their hay to shore.

Postmaster, Lansing, Iowa:

About 1,000 bushels of corn were saved; none was totally destroyed, but some was damaged to the extent of \$250. Two hundred tons of hay were destroyed; value, \$1,600.

Mr. M. O. Dulphy, Harpers Ferry, Iowa:

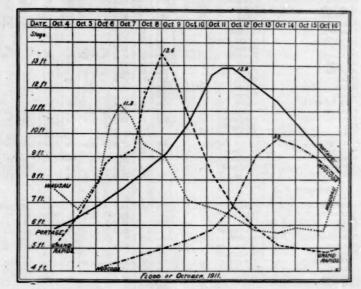
The loss to hay, corn, and potatoes in this vicinity amounted to about \$500. I had 50 head of cattle, 75 hogs, 100 tons of hay, and some other crops on the island, all of which I saved, as I used my River Bulletin as a guide.

Mr. J. A. Gillis, Prairie du Chien, Wis.:

The warnings were of great benefit. Farmers put large forces of men to work, and the greater portion of the crops was saved.

Postmaster Walter Kimball, Cassville, Wis.:

Losses in this vicinity: Six hundred tons of cabbages, value \$2,500; field corn destroyed, \$2,500; damaged, \$500; hay and sweet-corn fodder destroyed, \$1,000. If the farmers had taken better warning of your forecast the loss would not have been so heavy, but they could not believe the water would reach such a high stage. They now believe in the accuracy of your forecasts and will appreciate the service.



Wisconsin River Stages.

FLOOD REPORT.

By B. L. WALDRON, Official in Charge, Hannibal, Mo.

The excessive rains of September 25, 27, and 28, and October 1, following the frequent heavy rains that had fallen earlier in September, caused a flood in the North and South Fabius and in North and South Rivers that did a great amount of damage in the valleys of those rivers and in the Mississippi bottom lands across from Quincy, Ill.

The bottom lands were completely overflowed and the corn that was cut and in shock was either carried away or ruined, and that which was standing was injured. Thousands of tons of prairie hay was ruined as well as all the wheat that had been sown.

The levee at Taylor, Mo., was saved by great effort, all the men available working on it for two days and nights.

The O. K. Railroad lost about 100 feet of track just west of Taylor, Mo., and the Chicago, Burlington & Quincy had a weakened embankment near Moody or Dunsford, Mo., which caused them to detour trains for part of a day.

The damage to property except crops was probably \$500; the damage to crops was probably \$10,000. There was no special damage from erosion or deposit nor by suspension of business.

TABLE 1.—Climatological data for October, 1911. District No. 5, State of North Dakota.

		N. Tal	years	Tem	peratur	e, in	degre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	lays		Sky.	•	direc	
Stations.	Counties.	Elevation, feet.	Length of record, yes	Mean.	Departure from	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unfinelted.	Number of rainydays, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	g wind	Observers.
North Dakota.			4			-		11										15		
meniashley	McIntosh	954 2,001	14		- 1.1	****	12	12	26†	40	1.33	- 0.10	0.60	0	4	12	8	11	nw.	C. E. Wood. F. F. Zimmerman.
ottineau	Bottineau	1,638	16	41.0	- 2.0	78	8	8	27	39	2.48	+ 1.33	1.32		8	.5	10	16	nw.	A. J. Carlson. E. T. Judd.
osbyevils Lakeonnybrookimore	Divide		5	40.8		78	9	10	31	36	1.74	*******	1.52	T.	5	16	6	9	nw.	E. T. Judd. H. C. Kashau.
onnybrook	Ramsey Ward	1,482 1,760	12	41.5	+ 1.0	77	8 8t	8 9	31	32 41		+ 0.42 + 1.62		0.1	10	10	8	14	se. nw.	U. S. Weather Bureau C. J. De Vore.
nnseith	Rolette		14						400						3					I. H Trombridge
		1.610		44.6			10	8	28†	48	0.13		0.06	T.		13	6	12	w.	H. R. Aslakson. G. T. Seymour. A. Maltby. A. R. T. Wylie. W. A. Christianson.
rmanaftonanville	Sargent	1, 249 827	20	44.8	-0.1 -1.0	77 78	81	12 12	28 27 27	39 37	1.01	-0.51 + 0.57	0. 27 0. 42	0	5 7	10	6	15	nw.	A. Maltby.
anville	McHenry	1,504	5	43.8		79=	8	15a	27	40a	1.45		0.91	1.0	5				nw.	W. A. Christianson.
nnah	Cavalier	1,568	6 3	38. 21		751	8	61	31 27	39 f	2.08		1.56	T. T. T.	5 7	12	10	9	nw.	J. Moffatt. Geo. Dale.
Ilsboro	Traill	901	6	44.4		72	8	15	261	35	1.35		0.52	T.	8	9	12	10	nw.	F. E. Mayall. C. R. Pettes.
kota	Nelson	1,579	16	40.0		74	8	10	27†	36	2.19		1.00	0.7	8	9	13	9	se.	J. Woolner.
sbon	Grand Forks	1, 134	16	42.4	9.6	75			96	40	0.00	- 0.38	0.27		5	12	9	10	nw.	J. M. Freeman. H. K. Adams.
Kinney	Renville	1.640	17	41.8	- 2.6 + 0.2	79	8	11 10	26 27†	42	0.98 1.74	+ 1.07	0.37	T.	3	10	8	13	nw.	N. P. Swenson.
anfredayville	Wells	1,605	10 15		+ 0.2		8	12 10	31	44 28	1.33	+ 0.25	0.42	T.	7	11 16	9 2	11 13	nw.	P. B. Anderson. W. C. Gould.
inot	Ward	1.557	13	43.8	- 0.8	82	8	15	27	41	1.14	+ 0.33 + 1.05	0.55	0.5	6	15	4	12	W.	J. J. Bates.
intoriska	Walsh	820 1,270	18	43.4	+ 1.2	77	8	13	27	36	2.23	+ 1.05	0.85	T.	4	11	10	10	nw.	S. S. Marsh. J. J. Taylor.
rk River	Walsh	998	8	44.6		82	8	10	27†	40	1.52		0.60	0	8 7	12	13	6	w.	A. Heyward.
mbina	Richland	1.020	13	42.2	+ 0.4	72	12	10	30 26	30 36	1.19 0.72	+ 0.15	0.68	0	4	14	8	11 14	w.	C. W. Shumaker. J. A. Power.
att	McHenry	1	6 3	42.2								******						9		W. B. Ahern.
niversity	Grand Forks	830	19	42.2	- 0.9	79	8	11 12	28 31	30	0.93	+ 0.16	0.63	T.	8	15	3	16	nw.	B. Bagley. U. S. Weather Bureau
niversityahpetonalhalla	Richland	962	19	43.4		79	10	0.4	97	47.				т.	6	11	12	7		E. G. Burch. Ivan DeL. Lee.
esthope	Bottineau		. 5	42.3		. 78	9	11	27	47°	2.22	*******	1.79	T.	4	11 4	17	10	sw.	W. A. Meddaugh.
illow City	do	1,471	18	41.0	- 1.2	78	8	6	31	45	1.56	+ 1.02	0.97	T.	5	8	16	7	nw.	M. A. Ostby.
Minnesota.																1				
bert Lea		1,229	20	44.7	- 3.6 - 2.1	75	3	21	31	30	6.25	+ 4.19	1.50	T.	10	10	12	9	nw.	Edward Carey.
lexandriangus		1,391 870	17	43.6	- 2.1	71	12	18	31 27	29	3, 63	+ 1.98	0.84	0.2 T.	12	12	2	17	nw.	P. O. Unumb. John Nadvornik.
igley	Clearwater		. 5	41.0		75 71 72 71	8	10	26	39	1.45	******	0.61	2.0	5	10	11	10	nw.	Jens Nelson.
eardsley	Bigstone Mahnomen	1,090 1,200	17				13	13	26	29	1.10			T	7	16	8	7	w.	R. J. Buckley.
midji	Beltrami	1,400	9								1.03		0.37	Т.	8					Dr. P. A. Slattery. C. W. Warfield.
ird Island	Renville	1,039 1,179	21 18	45.8	- 4.3 - 3.0	72 72	11 3	14 27	31 27+	31 24	5.77	+ 3.99 + 3.33	1.43	T. T.	13 12	12		16 20		Dr. F. L. Puffer. W. D. Belden.
impbell	Wilkin	984	2	42.8		71	8†		30	35	2.15		0.38	T.	12	9		20	nw.	J. T. Neisess.
iss Lake	Stearns	1, 282	18	44.2	- 3.8	66	12+	21	30	25	1.24	+ 1.31	0.54	0	3	16	4	11	nw.	C. W. Burns. Fridolin Tembreul.
ookston	Polk Becker	863 1.364	21 15	43.4	- 3.8 - 0.5 - 2.7	69	8	12 11	31	29 35	1.01	- 0.68 - 1.46	0.35	T.	8	16 15	3 5	12	s. nw.	A. G. Andersen. G. W. Peoples. Rev. W. H. Farrell. W. F. Wherland.
ly	St. Louis	1,004		41.8	- 2.9	71	91	16	30	32	0.61		0.41	T.	4	13	10	8	nw.	Rev. W. H. Farrell.
airmont (near)	Rice	1.003	14		- 2.9	70	3	17	31	26	4.49	+ 2.76	1.86	1.0	13	13	6	12	nw.	W. F. Wherland. Dr. A. B. Moulton.
rmington	Dakota	902	23	45.2	- 2.6 - 2.8	70	3†	22	31	31	8.75	+ 6.20	2.94	T.	13				sw.	E. D. Akin.
orgus Fallsort Ripley	Crow Wing	1,210 1,136	19	43.6	- 2.8	66	11 13	16	27 31	38	1.18	- 0.50 + 1.66	0.41	0.5 T	10	10	10	11 16	nw.	C. E. Kissinger. J. J. Tucker.
osston	Polk	1,289	2	42.0		. 70	8	11	31	28	1.28		0.53	2.0	7	21	5		se.	O. N. Hem.
ramlencoe	McLeod	1,000	15	46.6	- 0.8	69	3†	19	31	31	7.60	+ 4.88	4.00	0	5	18	13	0	nw.	A. W. Clark. F. B. Reed.
rand Meadowull Lake Dam	. Mower	1,338	23	45.2	- 0.8 - 1.7	73	10	20 12	31	33	8.22	+ 5.77	1.74	T.	14	11	6 9	14	nw.	C. F. Greening.
allock	Kittson	815			- 0.4	62 75	8	9	27	31	3.52 1.77	+ 0.58		3.0	4	11 15	0	16	nw.	G. A. Williams. D. A. Robertson,
alstadinckley	Norman	870	5	42.6			11 12	11 15	27 31	34 38	1.50		0.55	T.		13	8	14	nw.	A. G. Holstrom. W. R. Newman.
ternational Falls	. Koochiching	1,112	3			75	9	15	31	39	0.62		0.50	T.	3	13	9	9	W.	Rees Roe.
asca State Park		1,500	4																	J. A. Stillwell. A. Gilmour.
ake Crystal	. Blue Earth		. 4	45.2		68	3	18	31	28	6.87		1.60	T.	14	10	11	10	nw.	W. P. Cobb.
sech Lake Dam	. Koochiching		23		- 1.9	71 73	12	11 8	31	41	1.25	- 0.80	0.52	T.	7 2	1 14	22	10	ńw.	Hans Olson. O. C. Olson.
ong Prairie	. Todd	1,299	19	41.6	- 3.8 - 4.3	70	1 8	10	30	44d	2.97	+ 0.89	1.10	0	3	14	6	111	nw.	A. L. Sheets.
ankato	. Blue Earth	758	12		1	1	3	14	30	32	6: 93 7. 60	+ 5.12 + 6.05	3.74	T.	8	104			nw.	J. W. Rouse. Sadie H. Blake.
ilacailan	. Millelacs	1,072	13	42.0	- 4.5	724	12	15	31	37d				. 0	50	1 8	4 90	100	1 So,d	C. H. Foss. O. K. Opjorden.
inneapolis	. Hennepin	918	17 20	45.8	- 3.7	72	11 12	14 23	31	29	6.42	+ 2.27 + 3.84	1.04	T.	10	11 9		14	nw.	U. S. Weather Burea
ontevideooorhead	. Chippewa	900	21	45.6	- 4.5 - 3.7 - 3.9 - 2.4 + 0.7	69 72 72 72	11	23 15	31	25 37	3.99	+ 2.17 - 1.05	1.11	0	10	13	8	10	86.	L. G. Moyer.
ora	. Kanabec		. 6	43.0	T 0.7	73	8 12 11	14 13 17	31	34	1.02 2.65		1.00	0	13	11 20	3	8	nw.	U. S. Weather Burea Hans Peterson. D. T. Wheaton.
orrisew London	. Stevens	1.170	26 17	43. 2 45. 8	- 2.9 - 1.1 - 3.8 - 4.2	68 72 71 71	11	17 20	31	29	2.72	+ 1.22	1.05	Т.	10	14	9	8	nw.	D. T. Wheaton.
ew Richland	. Waseca	1,180		45.3	- 3.8	71	12	21	31	24	3. 37 8. 11	+ 1.62	2.24	0.5	14	9	13	9	sw. nw.	Harold Swensen. N. O. Tyrholm.
ew Ulm	Douglas	791	31	44. 4 42. 4	- 4.2	71	3 14	18 15	31 31	29 33	8.71	+ 6.65		T. 0.2	13	10	3	20	nw.	N. O. Tyrholm. A. L. Henle. I. B. Johnson
ark Rapids	. Hubbard	1.426	21	41.4	- 1.6	68	8	14	26	34	3.39 1.28	- 0.67	0.25	1.4	10	12	2	17	nw.	J. B. Johnson. Dr. P. A. Walling. Neil McKay, A. L. Mampel. A. C. Goddard.
ice River Dam okegama Falls	. Crow Wing	1,251 1,280	24	42.1	- 1.6 - 2.0 - 0.5	70	12	10	31	35 40	1.78 0.91	- 0.66 - 1.17	0.53	T. 0.7	6 7 2	13	111	7	e. se.	Neil McKay,
edlake	. Beltrami	1.152	3	43.0		74	8	16	31 27	35	1.01		0.65	T. T.	2	7	9	15	W.,	A. C. Goddard.
ed Wingedwood Falls	Redwood	680	15	45.7		71	11				9.60	+ 6.74 + 6.23	3.30	T.	15	10	3	19	se.	Louis Bach. N. B. Andersen.
eeds Landing	Wabasha	681	16	10.1				17	31	30	7.53 8.69	+ 5.39	4. 27 3. 40	0	13	8 8		22 17	se.	John Deschneau.
chester	Olmstead	991 1,040	6	44.8		72	31	22	28	35			2.85	0	112	8	6	17	nw.	S. R. Case.

TABLE 1.—Climatological data for October, 1911. District No. 5—Continued.

			years	Tem	peratur	e, in	degre	es Fal	renh	elt.	Pre	elpitation	i, in in	ches.	days,		Sky		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Minnesota—Continued.	2																			×
t. Charles t. Cloud t. Paul	Winona Sherburne Ramsey	850 1,020 837 825	33 40 17	45.7 44.4 45.8	- 2.5 - 5.5 - 2.3 - 4.5	74 69 70	3 12 12	21 18 22 20	31 31 31 30	37 33 25 30	7.89 4.87 7.55	+ 5.05 + 2.03 + 5.21	2.16 1.08 3.61	T. 0	13 12 13	11 11 8 12	8 8 10	12 12 13	se. nw. se.	S. W. Gleason. J. H. Capser. U. S. Weather Bureau. State Hospital.
t. Peterandstone	Pine						3				6.73	+ 4.33	3.11	Т.	11		9	10	n.	A, D. Hale.
andy Lake Dam tate Sanatorium	Cass	1,234	18	42.1	- 2.5	72 70	12 12	12	31	39	1.08 1.36	- 1.07	0.31	0.2	6	8 12	12 10	11 9 18	nw. se.	A. Newstrom. Dr. L. B. Ohlinger.
aylors Falls	Chisago	694 759	6 4	45.0		74	12	16	31	36	7.31 5.95		2.40	0	8 7 4 4	10 12	3	15	ne. n.	Oscar Ostrom. Mpls. Gen. Elec. Co. E. W. Lown.
hief River Falls	Pennington Roseau	1,069	2	41.4		:-	9	8	26	39	0.45			T. T. T. 0.3	4	12 14	2	15 15	S. S.	E. W. Lown. J. H. Sawyer.
Vest Concord Vinnebago	Dodge Faribault	1,232	2 2 12	45.3		71 76	3	20	31 31 31 28 31 31	29 38	8. 07 5. 47	+ 3 10	2.00	T.	10	9	10	12 15	se. nw.	H. H. Orcutt. H. H. Haight.
Vinnibigoshish Vinona	Itasca	1,300	23 15	42.8	- 3.3 - 0.8 - 0.9	71 74	3 12	19 16 23 17 21	31	35 33	1.14	- 0.79	0.30	0.3	8	12 13	5 5 5	14	nw. w.	John Duncan. P. C. Myers.
Vorthington	Nobles		16 15	43.6	- 4.8 - 3.8	67 71	3 3	17	31	26	5. 26 10. 23	+ 3.23	2.60	0.5 T.	13 13	16	9	13	w. nw.	M. P. Mann.
South Dakota.	Gooding	917	10	44.0	- 3.0	11	31	21	31	30	10. 20	********	2.00	1.	10	10		12	uw.	W. C. Rowell.
filbank	Grant	1,148	20	43.4	- 4.4	71	11	16	31	33	3.70	+ 2.00	1.27	0	10	14	3	14	nw.	I. T. Patridge.
Wisconsin.																				
ntigo		1,489	17	43.6	- 1.7	73 72	12	16	27	38	6.56		2.74 2.55	T.	8	12	7	12	w.	Elton C. Larzelere.
BarronBeloit	Rock	1,115 750	20 45	43.8	- 1.7 - 1.9 - 1.3	72	12 3 12	19 24	271	38 26	7.26 2.32	+ 4.42 + 0.24	2.55	0.5	9 7	11 16	12	15	s. n.	Wm. A. Kent. Smith Observatory.
Big St. Germain Dam	Vilas Green	1,590 812	13	42.2	- 3.2	71 74	12 12†	19 24 14 20 23	27† 28 27 28 27†	41 34	6.62		2.02	3.0 T.	11	14 15	7	13	nw.	Oscar Brehmer. Hector D. Kirkpatrick.
urnett	Dodge	880 888	7	46.6		71	12	23	27†	32	4.54		1.33	0.5	7 13 15	6 3	8 12 10	17 16	nw.	Geo. W. Smith. John E. Mellish.
ottage Grove arlingtoneerskin Dam	La Fayette	867	5	47.0		75	3	16	28	34	4.00		1.65	0	6	10	10	11	nw.	S. P. Nelson.
elavan	Walworth	1,625 920	20	48.4	+ 0.2	68 72 72	12† 3†	23	28	34 27	5.06	+ 0.29	1.87	2.0 T.	9	10 5 7	13	13	w. sw.	Wm. E. O'Neal. Elwood S. Austin.
odgevilleowning	Iowa Dunn	1,116 983	11			72 72d	12† 3† 3† 12	22 17d	28 27 31	27 404	8.84		1.80	0.1 T	ii	70	51		sw.	Thomas Gibbon.
au Claire	Eau Claire Wood	800 1.021	20 12 20 19	46.0	- 2.6	75 75	12	22	27†		10.35	+ 7.13	3.27	T. T.	15 13	10	6 3	15	nw.	Eugene F. Stoddard, Robert D. Whitford, Willis B. Raymond,
rand Rapids	Burnett	1,095	20	44.4	- 2.4	76	12	33	28	43	3.30	+ 0.60	1.50	T.	5	10 15 12	5	11	nw.	Theodore Olsen.
lancock	Waushara Jackson	1,091 973	17	45.2	- 3.6 - 1.7 - 2.4 - 1.7 - 3.6 - 2.9 - 3.9 - 3.2	72 75	12 12 12 12 12 12 12 12	19	26 28	43 39 43	6.89	+ 7.13 + 4.86 + 0.60 + 4.68 + 4.29 + 0.44 + 2.65 + 3.30	1.90 2.02	T.	10 8	31	8		80. 8W.	Frederick B. Hamflton. Walter S. Woods.
laywardlillsboro	Sawyer Vernon	1,197 1,000	20 20	42.2	- 2.9 - 3.9	73 73 70	12 12	15	31 28	40	3.70 5.01	+ 0.44	1.30	T.	10	10h 13 0	11	176	W.	William E. Swain. Emil V. Wernick.
oepenickac du Flambeau	Langlade Vilas	1,683	20	42.6	- 3.2	70 67	12† 14	10	27 27	41 38 26 ¹	6.47	+ 3.30	1.60	0.7 T.	10	10	21	10	nw. w.	Edward S. Koepenick.
a Crosse	La Crosse	714 897	39 20	47.0	- 2.9	73	3	24	28	32 24	6.39	+ 3.93 + 2.93	1.98 1.78	0.8	13 11	9	6 9	16	s. n.	W. J. Lovett. U. S. Weather Bureau. S. Newton Dexter Smith.
ake Millsancaster	Jefferson	1,070	20 20 3	45.8°	- 2.9 - 2.2 - 3.7	71 74d		200	28	320	4.10	+ 2.04	1.95	0.1	10 12	10	8	13 17	W.	Edward Pollock.
ong Lake	Oneida Dane	1,592 974	3 42	41.0	- 0.4	71 72	12	23 22 17 ⁴ 22 11 33 19 18 9 15 10 18 24 24 24 20 10 12 15 18 19 23 20 16 16 17 18 18 18 18 19 24 24 25 10 10 10 10 10 10 10 10 10 10 10 10 10	27† 27 28 26 28 27 27 28 27 27 27 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	45 23	6.06	+ 0.50	2.17 1.11	0.2	12	6	7 7	18	w. nw.	Louis Frank. U. S. Weather Bureau.
other	Tunoqu .	962 882	7 15	44.2		72 70	13	19	28 28	34 30	8.32 6.02		1.90	T.	14	6 7 5	13	21 11	w. nw.	Frank Evans.
auston	do	974 1,420	20 22	45.5	- 2.4 - 2.4 - 2.9	74 72	13 12 12 12 12 12 12 12	20	271	36 35	8.50 8.80	+ 3.53 + 6.04 + 5.39	1.96 2.95	T.	16	5	13 12	13	nw.	Eugene L. Hitchcock. Charles H. Johnson. Wm. Zeit,
errill	Lincoln	1,267	5	45.4		79	12	15	27	46	8.77		3.00	1.0 T. T.	10	11	6	14	8.	J. M. Wilson.
ondovi	Buffalo	738	7 3	46.6		72		21	28	36 38	7.93		2.00	0	15 18	9	6 8	16 14	w. nw.	Benjamin W. Applebes. Dr. Chas. Hebard.
ount Horeb	Dane	1,226	7 2	47.4	•••••	72 74	3†	20 19		33	3.64		1.15	1.0 T.	10	11	4 3	16	nw.	W. M. Lewis. Wm. Hessler.
eillsvilleew Richmond	ClarkSt. Croix	996 990	21 6	45.6 44.2	- 1.3	75	12	20	27†	40 35	8. 40 7. 17	+ 5.48	3.12 2.57	T.	8	11	15	20 5	nw.	Wm. Heaslett. Franc A. R. Van Meter.
sceolaark Falls	Polk Price	806 1,492	20 20 22	44.6	- 2.2	70 75 74 74	12 11† 12 12 12 12 12	17	31	30	6.72	+ 3.77	2.54 1.75	T.	6	9	7	15 16	w. nw.	Charles W. Staples. Flambeau Paper Co.
ortage	Columbia	809	22	48.6	- 1.4	74	12	24	27	43 31 35	4.92	+ 2.79	1.22	T.	15	9	7 8	14	e.	James H. Martin.
rairie du Chien	Wood	969 690	1 20	45.9 49.0	- 2.9	70 76	34	20 17 17 13 24 17 24 20	27† 31 31 27 27 27† 28 28 27 27 28 31 26 28	34	6.56 5.00	+ 2.79	1.90 1.68	THEFFE	14 9	15	0	16 22	W. S.	Nekoosa-Edwards Paper (James H. Gillis.
rairie du Sac	Sauk Price	750 1,551	3 13	47.8	- 3.9	70 70 71	18 12† 12	20	28 27	34 29 41 39	3.35 6.87	+ 3.91	0.85 1.50	T. 2.0	10	9	9	13 19	ne. w.	Wis. River Power Co. Joseph G. Lash.
hinelander	Oneida La Fayette	1,550 1,019	5 5 5	43.4		71 72	12	10 15 20 9 13 21	27	39	8.87		2.80 1.41	2.0 T. T. T.	13 12	10	5 6	16 16	W. W.	Rhinelander Power Co. Harrison B. Chamberlain.
lon Springs	Douglas	1,083	5	41.5		71	12	9	31	39 34	2.90		1.10	T.	5 8	10 15	4	17 13	sw.	John M. Sayles. Horace A. Bresee.
ooneranley	Washburn Chippewa	1,104 1,082	17	44.2	- 3.5	71 74	12 12	21	28		10.02	+ 0.63	4.17	0	9	15	3 1	15	nw.	W Humphrey Scott.
evens Point gar Camp Dam	Portage	1,113 1,582	18							****	6.62	+ 4.09	2.15	3.0	13	****			se.	Garry E. Culver. Robert Haves.
win Lakes Dam	Vilas Monroe	1,625	1		- 3.1	70	12	22	28	32	5, 40		2.30 2.00 2.19 1.59	0	8	13	18	8 12	sw. nw.	Albert D. Hansen. Frederick Muermann. Henry E. Rogers. Louis L. Thomas. Charles J. Salick.
roqua	Vernon	1,412	19 21 3	48.0	- 3.1 - 1.0	70 72	12 3 9	24 12 20	28 28 31 27 28 27 27 27 27 28	32 27 39 27 28 35	9. 19 7. 84 5. 21	+ 6.37 + 5.35	1.59	T. T. 0.5	11 15 9	10	6 9 12	12 8	nw.	Henry E. Rogers.
atertown	Vilas Jefferson	1,600 824	20	47.8	- 0.7 - 1.7 - 1.7	69 71 70 72 72 74	16	20	27	27	5. 21 2. 76	+ 0.85	1.25	0.5	10	6	11	14	50.	Charles J. Salick.
aukeshaausau	Waukesha Marathon	864 1,212	20 20 16	48.6	- 1.7	70 72	12 12 12	18	28 27	35	3.58 8.78 7.08	+ 0.85 + 1.80 + 5.76	1.63 3.05 3.02	0.8 T.	10	10	7	11 14	nw. w.	George H. Halder.
eyerhaeuser	Rusk Trempealeau	1,297 675	20	41.6 45.9	- 3.3	72 74	12 12	22 18 15 18	27† 28	38 39	7.08	+ 6.84	3. 02 3. 10	1.3	8 10	11 9	11 7 2 0	14 18 22	sw. w.	Miss Etta Stiles. Hans J. Haugh.
Iowa.	1-12/9				7											27				The second second
lbialgona	Monroe Kossuth	959 1,215	13 37 20 35 35 11	40 1	- 1.8 - 2.6	84 71 70 80 82 78 78	3	27 19 18 23 21 22 20 19	22 28† 31	36 27	3. 22 3. 35 3. 81	+ 0.65 + 1.26	1.67 1.31	T. 2.0	11 8	11 12	6 8 12 13 10	14 13	nw. nw.	J. I. Chenoweth. Dr. F. T. Seeley.
ltamana	Buena Vista Iowa	1,513 721 926 998 828	20 35	45.9	- 4.4 - 0.9 - 1.4 - 4.4 - 1.2	70 80	31	18	31 28	27 33 31 37 36 37 32	2 10	+ 1.67	1.44	1.5 T.	12	12 13	12	11 6	nw.	David E. Hadden. C. Schadt.
mes	StoryJasper	926	35	49.6	- 1.4	82	3	21	28 28 28 28 28	37	4.10 4.55 3.59 3.19	- 0.46 + 1.63 + 1.74 + 1.24	1.54 1.15	т.	11 13 11	11 11 13	13	6 7 10	nw.	Iowa State College.
axterelle Plaine	Benton	828	21	49.2	- 1.2	78 75	3	20	28	37	3.59	+ 1.24	1.78	1.0	11	13	5 16	10 13 11	nw.	W. R. Vandike. S. P. Van Dike. Geo. P. Hardwick.

TABLE 1.—Climatological data for October, 1911. District No. 5—Continued.

		-	year	Temp	perature	, in d	legre	es Fah	renh	eit.	Prec	pitation,	in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest dally range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Iows-Continued.									-											
Bloomfield	Van Buren		20	52.5 51.2	- 3.8	87 85	3 3	29 27	29 22†	31 41	3.11 2.46	1 0 70	1.42 0.95	Т.	10	13	5	13	nw.	Albert Power.
Boone	. Boone	. 1,134	6									+ 0.70		1.0						B. R. Vale. Carl Fritz Henning.
Britt Buckingham	. Tama		14		- 4.3	74	3	19	31	31	3.04	+ 0.88	0.75	1.4 T.	13	14	7 15	10 12	80.	L. M. Goodman.
Burlington			15 21	51.6	- 4.1	87 73	3	29	29 31	36 34	2.27	+ 0.05	0.70	T.	9	15	4 7	12	S.	J. S. Guynn. Max E. Poppe, jr. Mrs. Jos. J. Wolfe.
edar Rapids	Linn	. 733	29 20	48.8	- 2.6	80	3	26	281	28	3.88	+ 2.34 + 1.42	1.35 2.26	1.0 T.	11	10		14	ne. w.	Chas. B. Graf.
Charles City	. Cerro Gordo	. 1.241	13	48.4	- 1.2	76 71	3	24	28 31	30 29 31	2.81	+ 0.78	0.92	1.0	12 5	8 16	9	14	se. s.	U. S. Weather Bureau, Oscar Stevens.
Columbus Junction	Clinton	. 593 . 595	10	50.0	- 4.1 - 4.8 - 2.6 - 1.2 - 3.4 - 0.5 - 2.8 - 1.6 - 4.0 - 1.8 - 1.9 - 3.1	82 84 84 75	3 3	24	28	31	1.63	-0.77 + 0.13	0.50	0 T.	8 10	9	10	12 5	nw.	Luke Roberts.
Davenport	. Scott	. 580	40 18	51.0	- 1.6	84	3	28	27	39 29 33 27	1.57	- 0.82	0.56	T.	9	ii	6	14	nw.	J. B. Johnston. U. S. Weather Bureau.
Delaware	Delaware	. 1,083	20	47.2	- 1.8	72	3	20	28	27	5.72	+ 3.30 - 3.23	1.21	1.0	11 12	10	12	9	50.	F. H. Baker. William Ball.
Des Moines			33 38	50.6	- 1.9	78 76	3	26 27	28	28 30	2.61	- 0.07 - 0.34	$0.92 \\ 1.02$	T. 0.5	14 10	8	10	13 16	nw.	U. S. Weather Bureau.
Carlham	Madison	797	32	50.3 49.2		80 77	3 17	20 26 24 21 24 28 28 21 20 26 27 19 21 20 18 29	28 28 27 28 28 28 28 27 28 31 22 28 28	36	2, 52		1.08	T.	6	15	6	10	nw.	Do. George Phillips.
lma	Howard		2	45.6	- 0.2	74	3	20	28	40 31	5.87	+ 1.70	1.82	T. 0.5	10 14	15	5 11	11	nw. n.	Chas. Reinecke. H. A. Moore.
stherville	. Jefferson		16 27	44. 4 50. 7	- 4.4 - 1.7 - 0.2 - 4.7 - 4.5	78	11 3	18	31	33	5, 23	+ 3.06	2.95	0.5 T.	14 11	16		11	nw.	A.O. Peterson.
ayette	Fayette	. 1.003	21 17	46.5	- 0.2	83 75	3	17	28	35 33 35	4.77	- 0.54 + 2.12	1.35	1.5	11	13	5	13	nw.	R. Monroe McKenzie. R. Z. Latimer.
ort Dodge	Webster	. 1,126	111	45.0	- 4.7	74 75	3	20 20	281	35	3. 47	+ 1.17	1.13	2.0 0.5	9 12	12	5	14	w. n.	J. A. Peters. J. F. Monk.
ort Madison	Marshall	. 1.052	62 12			****					5.75	- 0.91 + 3.23	0.55 2.59	0 T.	5 11	6	9	16	8.	Miss L. A. McCready.
rand Meadow	Clayton	. 1,180	20 19	47.4	- 1.8	75	3	23	28	27	5.82	+ 3.35	1.42	2.0	14	9	10	12	nw.	J. L. Wylie. F. L. Williams.
rundy Center	Grundy	. 976	20	50.2 48.6	- 0.5 - 3.2 - 3.2 - 3.1 - 2.2 - 1.3	79	3	23 25 21 20 22 18	28 27† 28 28 31 28 28 28† 28 28 22 22 22	27 33 27	4.55	+ 1.10 + 2.08	1.06	T. 1.0	10	17	5	9	w. nw.	D. W. Brainard. J. B. Calderwood.
uthrie Center		1,077	16 21	49.2	- 3.2	76 76	31	20	28	36 32	4.06	+1.79 + 1.76	2.61 1.31	T. 0.8	10 11	19	3	9	nw.	D. G. Beardsley. E. C. Grenelle.
lumboldt	. Humboldt	. 1,095	23	47.8	- 2.2	76	3	18	28	33	3. 20	+ 1.31	1.61	T.	11	17	1	13	nw.	Henry S. Wells. R. E. Dudley.
ndependence	. Warren	. 969	47 20	30.8	2.9	77 78	3	20 28	28	31	3.38 1.82	+ 1.02	1.40	T. T.	12 12	14	7 10	10 18	nw.	R. E. Dudley. Prof. J. L. Tilton.
owa City	Johnson	683	51 18	48.6 46.2	- 2.5 - 3.5	78 82 77	3	28 22 18	28	33 31 30 32 32	2.78	0.00 + 1.69	1.02 1.22	T.	11	14 16	5	12 14	nw.	Prof. A. G. Smith. J. B. Parmelee.
efferson	. Greene		12 40	48.9		77	3	19	28	38	2.69	+ 0.47	0.88	T.	9	11	9	11	nw.	M. E. Hall.
eosaugua	. Van Buren	. 644	19	52. 4 51. 4	- 2.1 - 3.4	86 85	3	31 27	22	30 35	2.19 2.56	-0.30 + 0.72	1.13	T. T.	8 10	10	7	14	nw.	Weather Bureau. J. H. Landes.
noxville		920	16								2, 54	- 0.17	0.92	0	12					Casey & Bellville.
e Claire	. Scott	. 576	111								1.96	+ 0.07	0.62	T.	13	6	20	-5		J. B. Alter. Miss M. T. Disney.
farshalltown	Cerro Gordo	. 1,132	19	49.1	- 3.2 - 4.1	78 75	3	22 21	28† 31	35 27	7.03	+ 4.65 + 1.14	4.10	T. 1.8	14	11	5 7	15 10	nw.	Ralph B. Reasoner. J. S. Mills.
Ionroe	Jasper		30	50.6	- 1.9	83	3	26	29	30	3. 57		1.28	T.	6					J. A. Dibel.
luscatine	Muscatine		51								2.48	+ 0.47 - 0.56	1.07 0.56	T. T.	8	13	8	10	nw.	J. W. Edwards. William Molis.
ew Hampton	Worth	. 1,222	14	46.6	- 4.2 - 4.5	70 74e	12	22 20°	28 28 27 31	28 29°	4.98	- 0.56 + 2.72 + 1.96 + 0.79	1.32 0.90	T. 1.0	9	15 16	7 5	9 10	n. sw.	A. F. Kemman. Chas. H. Dwelle,
linsage	Jones	. 760	13 24	49.0	- 4.5 - 2.2 + 0.2	80 75	3	21 24	27	36 28	3. 20	+ 0.79	1.78	T.	8	12	12	7	nw.	Dr. F. W. Port.
skaloosa	Mahaska	. 843	35	49.9	- 2.2	80	3	27 30	26†	27	2.00	+ 2.13 - 0.32 + 0.43	1.12 0.85	1.0 T.	12	21 10	1 4	9 17	nw.	Lester Coonradt. Joseph Boyd.
ella	Marion	. 877	16	50.9	- 2.4	85 80	3	30 24	221	30	3.38	+ 0.43	1.73	T. T.	12	11 18	14	6 12	ne. nw.	Chester Potter. J. H. Ver Steeg.
errylover	Dallas	. 975	10	49.5 45.6	- 4.7 - 5.0	78 72	3	21 18	28 28 28†	37	3.63	+ 1.08	2, 28	T.	7	15	7	9	8.	Ed. S. Gray.
ocahontas	do. Winneshiek	1,248	7	46.6		73	3	20	28 28	31		+ 1.67	2.00 1.68	4.0 1.5	5 8	22 18	0	9	nw.	J. S. Smith. F. E. Hronek.
didgeway	Calhoun		13 15	48.9 47.4	- 3.5 - 4.6	75 70	12 11	22 15	28 31	32 35	4.81 2.65	+ 1.64	1.02 1.25	0.4 2.0	14	11	10	10 12	8.	Arthur Betts. C. M. Randall.
ac Cityt. Charles	. Sac	. 1.278	35 10	47.6 51.0	- 4.6 - 2.4 - 4.5 - 3.5	72	3	20	31	31 32	2.82	+ 0.24 + 0.53 + 0.11	0.86		11	12	6	13	nw.	E. N. Baily.
igourney	Keokuk	. 877	15	50.8	- 3.5	78 82	3 3 3	26 24 26 20 29 20 31 27 21 24 20 17	28† 28 29 31	32 29 32	2.34	- 0.22	1.10	T. T. T.	12	16 5	10 20	5	nw.	R. D. Minard. J. T. Parker.
tockporttorm Lake	. Buena Vista	. 1,440	9 22 12	50.6 47.4	- 4.9 - 1.2 - 2.9 - 2.7 - 1.0 - 1.4	85 70	31	26 20	31	32	2.11 2.08	+ 0.11	0.88	T.	9 7	15	7 4	9	nw.	C. L. Beswick. Prof. Warren Ingold. F. K. Gregg. I. F. Giger. G. W. Schofield.
ipton	Cedar	. 807	12 17	51.7	- 1.2	81	3	29	29	27 28 30 25 30	1 99	- 0.03	0.92	0	8	13 19	4	8	sw.	F. K. Gregg.
VapelloVashington	Louisa	588	13	51.7	- 2.7	78 80 84	3	31	29 28 29 29 28 28 28 28 28	25	1.68	+ 4.30 - 0.19 - 0.71	3. 63 0. 50	T. T.	13 7 7	15 15	8	8	nw. se.	G. W. Schofield.
aterioo	. Black Hawk	. 862	29 28 8	51.2 48.8	- 1.0	84 78	3	27 21	29	33	1.33	-0.71 + 3.23	0.45 2.50	0	7 12	11	14	6	nw. se.	Wm. A. Cook. Ralph B. Slippy.
Vaukee	Dallas	. 1.039	8	47 8	_ 4 9	79	3	24	28	30	3.08		0.96	T.	13	18	4	9	SW.	Samuel F. Foft.
Vebster City	. Hamilton		6	48.0	4.2	78	3 3	17	28	30 32 36 31	2.70	+ 3.82	1.90 0.65	1.8	10 7	10 12	12	13	ne. nw.	Samuel F. Foft. Earl C. Moore. C. D. Carpenter.
Vest Bend	Hardin	. 1,036	18	46.2	- 2.7 - 4.6 - 2.9	78 72 74	3	17	31	31 29	3.69	+ 1.85 + 1.79	1.72 1.24	2.0 T.	11	13 10	7 9	11 12	nw.	Phil. Dorweiler. Dr. F. P. Butler.
Vinterset	. Madison	. 1,129	20	50.4	- 2.9	78	3	20 24	28 28	29	2.82	+ 0.58	1.29	T.	8 12	8	8	15	nw.	Dr. Robt. S. Cooper.
Missouri.	Scotland	700	25								1.00	0.00	1 10					10		7 W 7-W
annibal	. Marion	. 534	33	54.4	- 1.5	88	3	31	29	29	1. 99 1. 66	- 0.29 + 0.02	1. 13 1. 02	T.	8	8	8	19 15	nw. sw.	J. W. Pulliam. U. S. Weather Bureau. J. T. Farrel. J. F. Llewellyn.
ouisiana	. Audrain	. 797	33 34 34	55.4	- 1.5 - 0.6 - 1.7 - 1.6	88 88 88	3 3 3	28 31 30	29 22 22 22 22	29 33 30	3.44	+ 1.17 + 1.18	1.47	T.	6	17	8 2	6 20	n. nw.	J. T. Farrel.
teffenville	Lewis	. 576	19	55. 5	- 1.6	88	3	30	22	33	3. 17	+ 1.10	2.00	T.	9	12	6	13	ne.	Frank Hall.
andalia	. Audrain	. 776	1			89 88	3	30 32	22 22	34	3.38		2. 23	0	3	4	4	23	ne.	Lewis Spriggs. C. B. Ellis.
arrenton	. Warren	. 865	22	55.0	- 0.5	88	3	32	22	34		+ 0.95	1.19	T.	14	5	8	18	n.	Prof. J. H. Frick.
Indiana.												119								
ollegeville	Jasper	716	12	53.9 52.4	- 0.1	84 79 78 75	6 6	25 26 25 25	29 29 29 29	40 28 27 29	5.82	+ 3.85	0. 91 0. 59	0	13 15	7 10	15 13	9 8	ne. s.	Otto Miller. W. R. R. Tatman. Wm. M. Walton, jr.
aporte	Laporte		15	I was a	- 2.6	1 27	U												- 35	

TABLE 1.—Climatological data for October, 1911. District No. 5—Continued.

	in the second		years	Temp	perature	, in d	legree	s Fah	renh	eit.	Prec	ipitation	, in inc	hes.	lays, re.		Sky.		direc-	*
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range	Total.	Departure from the normal.	Greatest in 24 hours.	- ·	Number of rainy day 0.01 inch or more.	Number of clear days.	of po	Number of cloudy days.	Prevailing wind d	Observers.
Illinois.																				
ledo	Mercer	738 670	11	50.8	$\begin{array}{r} -2.4 \\ -1.0 \\ -2.2 \\ -0.8 \\ -1.4 \end{array}$	83	3	27	29 29 28 24†	29	2, 50	+ 0.54	0.65	0	12	14	8	9	ne.	William B. Frew.
lexander	Morgan	670	18	54.8	- 1.0	86	3	27 29 23 29 25 28 26 37 32 32	29	35 25	2.03	+ 0.18 + 2.37	0.85	0	11	11	7 7	13	n.	George H. Hall.
ntioch		861 650	10 12	49.0	- 2.2	73 86 80	3† 3 3† 3 3 3 3 3 3	23	28	31	4. 16	+ 2.37	2.00	T.	8 7	7	7	17	ne.	J. C. James.
storia		687	32	50.0	- 0.8	80	3	29	24	30	2.66	+ 0.77	1.62	T.	9		8	12	nw.	Edward V. Bohl.
uroraement	Piatt	700	4	55 1	- 1.4	86	34	99	29	41	2,76	+ 1.11	0.90	T.	12	8 16	6	9	sw. n.	W. Holden. Rev. C. S. Adams.
		840	20	52.5	_ 9 1	00	91	28	29	33	2.10	+ 0.95	1.12	T.	12	12	4	15	se.	Prof. H. N. Pearce.
loomington	Alexander	359	33	60.3	- 2.1 + 1.2	85 89	3	20	21	24	1.08	- 1.55	0.39	0	7	9	5	17	n.	U. S. Weather Bureau.
arbondale	Jackson	412	6	60. 3	T 1.2	90	3	39	24	34	3.69	1.00	1.40	0	9	12	5 7	12	SW.	State Normal University
arlinville	Macoupin	663	21	56.2	- 0.1	89	3	32	29	33	3 40	+ 1.07	1. 10	T.	9	19	8	4	ne.	W. T. Eddy.
arlyle	Clinton	470	26			00		- 02			2.50	+ 0.35	0.68	T.	9					J. E. Rogan.
hester	Randolph	380	5								4.38		1. 46	0	12					F. A. Gollon.
linton	Dewitt	727	1	53. 5		85	3	28	24	29	3.04		1.10	0	12	10	10	11	SW.	J. Frank Ziegler.
oatshurg	Adams	763	19		+ 0.3	85	3	30	29	28	1.95	- 0.39	1.14	0	6	4	9	18	3.	Dr. J. R. Lambert.
obden	Union	656	28	60.6	+ 0.3	91	3† 3	28 30 32 23 28 26	23	35	2.11	- 1.29	0.68	0	5	13	3	15	S.	John Buck.
akota	Stephenson	929	6	48.8		78	3	23	28 29	28	3.52		2.50	T.	9	10	9	12	80.	Rev. G. W. Kerstetter.
ecatur	Macon	685	20 21	54. 2	- 1.3 - 2.2	86	3	28	29	36	2.59	+ 0.52	0.70	0	10	18	7	6	ne.	Prof. J. H. Coonradt.
ixon	Lee	725	21	49. 4	- 2.2	75	31	26	24†	34		+ 0.17	0.50	T.	11	14	9	8		H. U. Bardwell.
u Quoin	Perry Livingston	459	23	59.6	+ 1.5	90	3	31	24	38	3.02	+ 0.84	1.05	0	8	12	10	9	SW.	G. H. Knetzger.
wight	Livingston	600	18	52. 4	- 0.2	83	3	27	24	31		+ 2.49	0.75	T.	14	8	6	17	ne.	Edward O. Welch.
ast St. Louis	St. Clair	418									2.99		1. 20	0	10					W. McK. Brown.
dwardsville	Madison	554	12						****		2.80	+ 0.36	0.92	T.	7					W. H. Morgan.
lgin	Kane	716	4	51.6		81	3	27	24	31	2.55		0.49	_0	15	4	11	16	nw.	Elgin Observatory.
alva	Henry	842	19	51.4	- 1.6	84	3	28	27†	33	2.05	+ 0.16	0.48	T.	12	13	5	13	S.	Prof. F. U. White.
rafton	Jersey	422	18	F0 0		****			004	00	3. 10	+ 0.59	0.86	0	9			77		R. C. Goodrich.
raftonreenvilleriggsville	Bond	635 650	33 26	56. 2	- 0.3	85	3† 3 3	30	23†	26	5. 59		2.00	T.	10	12	9	14 15	sw.	M. S. Oudyn.
riggsville	Masser	475	19	55.4	- 0.0	87	3	32	29	34 35	3.00	+ 0.74	1.75	0	6	7	18	6	se.	George F. Kneeland.
avana	Mason	500	23	59.4	- 0.3	87 84	3	29	20	31	2.07	+ 0.01 + 0.25	1.30	T.	10	12	9	10	n.	F. and C. Borgelt.
avanaenry	Montgomery	675	23 17 20	50.4	- 0.3 - 0.5 - 1.3 - 0.8 - 2.1 - 1.6 - 1.1 - 2.0	88	3+	36 32 29 26 33 26 24 27 25 19	29 24 24† 28 28 29 28 27 29	32	4.08	+ 1.14	1. 32	T.	10	13	3	15	S.	Dr. F. A. Powell. Ira L. Woodward.
oliet	Will	541	20	50.0	- 21	80	6	26	24	29	4. 18	+ 2.21	1.04	T.	12	11	10	10	SW.	F. M. Muhlig.
ishwaukee	Winnebago	730	23	49 6	- 1.6	82	3	24	28	32	2.39	- 0.18	0.82	0.1	10		11	11	se.	George Stevens.
a Grange	Cook	657	23 19 32 22 33 23 11	50.8	- 1.1	79	3	27	28	30	3.70	+ 2.11	0.65	T.	15	9	13	11	W.	Prof. F. E. Sanford.
a Harpe	Hancock	698	32	52. 4	- 2.0	87	3	25	29	34	2.06	- 0.38	0.73	T.	6	14	10	7	nw.	George E. Campbell.
a Harpe	Carroll	883	22	48.6	- 1.6 - 0.1 - 1.6	80	3	19	28	42	1. 45	- 0.55	0.43	0.3	13	14	5	12	nw.	M. N. Wertz.
a Salle	La Salle	536	33	51.8	- 0.1	85	3	30	27	31	2.40	- 0.18	0.54	T.	12	6	12	13	W.	U. S. Weather Bureau.
incoln	Logan	482	23	53. 2	- 1.6	83	3	30 25	29	30	2.40	+ 0.63	1.08	0	7	11	12	8	n.	Prof. C. S. Oglevee.
oami	Sangamon	624	11								1.92	- 0.02	0.67	0	6	11	0	20	SW.	H. C. Foster.
anteno	Kankakee	711									3.40		0.64	0	15	16	6	9	n.	H. C. Foster. J. F. Schmeltzer.
artinton	Iroquois	633	24	52.0	- 0.6	83	3	25	29	35	2.99	+ 0.81	0.75	0	12	8 12	13	10	nw.	Joseph H. Peltier.
artintonaseoutah	St. Clair Woodford	425	21 18	58.2	+ 1.3	92 82	6	29	24	38 35 33 31	3. 51	+ 0.85 + 2.14	1. 20	T.	12		7 5	12	SO.	George Henrich.
inonk	Woodford	745	18	53. 4	- 0.7	82	6	. 25	29	35	3.75	+ 2.14	1.04	T.	14	10		16	nw.	M. H. Pfaffle.
onmouth	Warren	784	19 17	51. 2	- 2.4	86 81 87	3	. 28	24	33	2.38 2.20 2.32	+ 0.52	1.10	0	11	17	1	13		Dr. J. C. Hutchison.
orrison	Whiteside	685	17	50.6	- 2.2	81	3	24	28	31	2, 20	+ 0.30	0.50	0.1	11	10	11	10	ne.	S. A. Maxwell.
lorrisonville	Christian	638	12	54.0	- 0.7 - 2.4 - 2.2 - 2.3 - 1.2	87	3	29	29	33	2.32	0.00	0.78	0	10	14	7 7	10	8.	J. D. Lowis.
ount Vernon	Jefferson	511	17	50.8	- 1.2	89	3†	25 29 25 28 24 29 30 26 27 34 25 30	29 24 29 24 28 29 24 27 29 23 29 24	33 39 32	2.62	+ 0.21	1.05	0	6	9	1	15	n.	Theodore P. Stelle.
regon	Ogle	702 500	25	00. 2		. 83	3	20	20	31	2.58 2.61	+ 0 67	0.89	T.	11	6	6 2	19	n. sw.	Samuel Ray. Miss Maude M. Harris.
ttawaana	La Salle	692	25 25	55 0	+ 0.3	95	34	24	994	91	2.61	+ 0.67	0. 61	0	9	7	14	10	Sw.	C W Sibley
eoria	Peoria	609	33	51 2	- 0.1 - 0.6	85	3	95	20	28 31	2.65		1. 49	T.	11	5	11	15	n.	C. W. Sibley. U. S. Weather Bureau.
ontige	Livingston	546	9	53. 4	0.0	. 85	3	30	244	32	2, 68		0.72	T.	13	8	9	14	W.	George Butterworth.
ninev	Adams	481		55. 0		. 86	3	33	22	30	1.76		0.70	T.	8	14	0	17	nw.	Fred J. Brinkoetter.
uincy iley oberts ockford	Adams McHenry	956	52		+ 0.8	79	3	33 25	28	29	2. 16			T.	12	7	7	17	nw.	John West James.
oberts	Ford	774			0.0			-0	1.	-	3.75		0.87	T.	12	15	7	9	SW.	R. E. Bradbury.
ockford	Winnebago	763	19	49.9	- 0.5	77	3	26	28	27	2.86	+ 0.17	0.93		12	21	0	10		. Hosmer C. Porter.
ushville	Schuyler	670	20		d + 0.3	864		27	24	29	2.18	+ 0.52	1.46	0	6	11	5	15	n.	H. F. Dyson.
. Charles	Kane	700	16	50. 4	- 1.6	81	3	26 27 24	28 24 24	32	2.81	+ 0.89	0.65	T.	14	7	16	8	ne.	Dr. William H. Bishop
t. Peter	Favette	500	10	57.8	- 0.4	88	6	32	24	34	4. 40	+ 1.31	1.65	T.	9	11		12	nw.	M. L. Lansford.
parta	Randolph				+ 0.4		3+		24			+ 1.23		0	9	13	8 7	11	nw.	James A. Caldwell.
partapringfield	Sangamon	644		54. 4	- 0.2	86	3	34	27	27	2.60	- 0.60	0.60	0	8	5	14	12	S.	U. S. Weather Bureau.
treator	La Salle	626	18													10000				Miss Lora Sweetser.
ullivan	Moultrie	530	11	54.8	- 1.3	87	3	29	29	36	3.42		0.73	0	12	11	11	9	nw.	C. A. Corbin.
yeamore		855	31 27 20	48.6	- 1.6	82	3	24	24	38	2.91	+ 0.36	0.50	0		13	4	14	nw.	Miss Edna J. Davis.
iskilwa	Bureau	798	27								1.71	- 0.22 + 1.26	0.53	T.	7			****		. F. I. Smucker.
Valnut Varsaw	do	717	20	51.0	- 3.4	82	3	27	27	29	2.90	+ 1.26	0.68	T.	12	10	9	12	nw.	O. C. Nussle.
VarsawVhite Hall	Hancock	501	13								2.17	- 0.63	1. 22	0	4	***		****		W. R. Kirkbride.
Vhite Hall	Greene	573	12	54.8	+ 2.3	87	3	29	29	36	2.51	1 1 00	1.12	T.	8	10	6	15	W.	Dr. R. A. Pritchett.
Vindsor	Shelby	681 900	12 24	55. 9	+ 2.3	88	3	27 23 25	29 28 24	35	3.78	+ 1.66 + 1.12 + 1.70 + 0.26	0.81	0	10	11	9	11	SW.	Herbert Rose.
		OUN	7.4	1 40 4	- 1.8 - 0.6 - 3.0	80	3	23	1 28	30	1 3, 32	1+1.12	0.85	0.5	12	111	10	10	SW.	Frank Osborn.
Vinnebago orkville		584	24	40.0	0.0	81		0.5	044	31	4 04	1 4 70	0.70	T.	15	9	5	17	W.	Herman A. Grimwood.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
 Also on other dates.
 Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 5, North Dakota.

Clankle	Watershadi														I	ay o	of mo	nth.															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
North Dakota.																												-					
menia	Red			. 30	.08		. 35							. 60							T.	T.				****							1
ttipeau	Missouri Mouse			1 39	79			02				****	****	15	****		.01			.08	.05	****	.13		****			1					
ndo	Sheyenne																																
eby	Mouse			1.52									.51				· · · · ·		.04	T.	T.	.11	m	.07								.01	
vils Lake	Sheyenne		.04	. 39		.28			****	****			74	.31			T.	****	m.	.04	.00	.01	1.		****	T.		1				.02	1
nnybrook	Mouse	****		1.01																													
more	Sheyenne			.06	T.	.05	.02						T.	T.							T.	T.	T.									T.	1
enden	lamas	1	1							1	1	1																				****	1
man fton	Sheyenne													- 42	- 117			5-1-1				0	. 15										
nville	Mouse		1	91		1000								. 21						.07	.22	.04			T.	****							Т
nah	Dombino	4		1 15/2	56						1	1	36.4							.09	.03		.06		T.	T.						T.	-
sboro	Red	****		11.27		.01	96		****				05	52		****		****		.05	.07	****	.06	****	****			1		1		T. T.	1
sboro	Reddo	****	T.	.50	T.	1.00	.10	****		****			110	.40	T.					.03	.04		.02			T.						T.	1
gdon	Pembina				****																												
more	Red													****			****																
on	Sheyenne Mouse	****		-17	****		.34			****									****	T		. 25	****	****		****			****			Т.	1
Cinney	Sheyenne	T	T.	29	****	. 40	.08	****	****				.03	.42	.03					T.	.08											T.	1
ville	Red		. 31			. 40	.09						.03	.30					A	.30	. 30												-
ot	Mouse		T	.55	.08			****						. 24						.03	. 15	17	.09	****	****	Tr			****			T	1
ka	Red Sheyenne													. 01																			a,
River	Red		.48		. 03	. 19	.12						.04	. 60						02	.04	10					1	A.z.		1		Jan .	1
bina	do	T.		.38	. 68		T.								.02	.04				.01	.02		.04		****								-
er	Sneyenne		. 20			. 28			****				.17	.04						1.		****	1.	****		****					1::::		
ner	Mousedo		T	63	****		****	****		****				.13						. 10	T.		.07		T.		1					T.	1
ersity	Red			. 32	.04	. 43	.10						*	. 60						.01	.02		.08			T.						T.	1
peton	do		1	1					1			1																					-
halla	Pembina Mouse		1	. 89		.01			****		****		****					.18	****	10	. 09	16	****	. 08	T							T	1
ow City		***	111	. 97	****	****							T.	.17			1111			T.	. 24	.07										T.	ì
Minnesota.				1																													1
ert Lea	Mississippido		.20	1.50		1.50	. 90							.05	. 15	. 80	.90		. 20				T.				.0	5					
candria	do	. 35	2	. 20	.06	T.	.84	T.	****					.51	. 25	T.	. 45	.80		. 05	. 05		.05	. 05									-
38	Red			. 47	. 03	.37								.27					19	.05	.04	T	24			T.							1
e y dsley	Minnesota			. 40	.00	****	****	****				****		.01					.12				. 24										1
nlien I I	Red			40	10	1	00	1				1	1	-30	0.08	T.			.10	. 03		T.	T.										
idji	Mississippi Minnesota			. 18	.15		.10							.37	.02			. 01				.08	.12			·	70						-
I Island	Minnesota	0	6 .02	21.16		1.06	1.43						. 10	.17	.04	. 13	1.43	76	90	.10	****		.03	T. 04	m.	16	T.						1
donia	Mississippi Red	16	6	. 82	.00		1.09	.09					30	.20	.06	.00	.02	T.	.00	. 00			. 26	.15	1.	.10			1000			****	1
Lake	Mississippi			, 00	. 54									. 50			.20																
egeville	do	. 02	2	. 31		. 42	. 72							. 21	. 66	.08	. 59					. 02	.08										
kston	Red		T.	.07	.28	dD.	.08							35	.02		. in		. 03	m.	.06	m	.12 T.							-			-
rolt	Rainy	T.	T.	. 18	. 18	T.	. 15	****					****	08	. 64	T.	.41	T.	****	T.	T.	4.		T.		1.							
mont (pear)	Minnogota	O.	8	96		1 96	.78	.15					. 25	.08			.21	.32	.16	T.			. 05		*	. 15	5 . 10	5				T.	1
bault	Mississippi																										70						
nington	MississippidoRed	. 10	T.	1.40		1.42	2.94			****				T.	. 28	. 18	1.42	.38	. 05	04	T.	T.	.05	.04	. 21	. 22	T.						-
gus Falls	Mississippi			. 41	. 02	. 25	.15						.09	30	75		15	. 45		.04	.01	1.		16	****	****						****	
Ripley	Red	. 01	9	. 24		.14	. 80							.53			.01	. 20	∵ii	. 05	T.		. 20										. 1
m	do																							****	****								-
1000	Mississippi			1.75		4.00	1 07	08						.45	.50	1 91	1.74		93			T.	T. T.	T	99	19	0					****	1
nd Meadow Lake Dam	do	. 4	3 .00	95		1. 33	54	.00				****	48	.09	1.20	1.21	65		T.	T.	.08	.02	.15	1.									
lack	Dad			1.40	.17	T.	.04														05		.15										
stad	do			. 15	. 22		. 30							. 55					.09	****	. 04		.15	· · · ·									
stad	St. Cro'x			- 40				1.50						m	.09		****	0.5	****		T.		T	1.						T.			
ca State Park	Mississippi			. 00	.07								1																				
e Crystal	Minmonoto	. 64	0	. 32		1.60	1.56	. 31						. 40	.14	. 64	. 54	. 10	. 49		.06			.04	.07		. T.						٠,
ch Lake Dam																																	
leforkg Prairie	Rainy			.25	.04				1.10			1		.90			.97				****	****		****									
d	Minnesota	.0	7	. 76			3.74						. 60	.01			1.60		T.	.11	T.		. 04										
kato	do	4	4 .11	. 51			3.46	.18							.14		1.90	.14	. 45		.07		T.			. 20	0						
cn	. Mississippi		T (T)			1 0	***						00	00		*	1 00	****		10					. 25								1
nneapolis	Minnesota Mississippi	.0.	I.	1.59		2. 31	.57						T.	. 59	.10	.39	.81	T.	0.1			1 0.3	0.3	OB				4		-		T.	
tevideo	. Minnesota	3	4	. 69			1.11	.04						. 40	.06		1.00	. 24					T.	. 05		.06	6						
rhead	Red			. 39		.17	1						. 16	.17						.04	.01		.08	***									
A	Minpocoto	0	5	. 47	. 03	.15	1.00						40	10	.04	10	- 50	****		.06	.05	.01	. 10	.11	.03								i
ris	Minnesota	T	T	. 20	42	61	49			****			. 40	.00		1.50	T.	****		.00			. 10	T.	. 42	T.							
Richland																									20	26	r n	D .	1			1	
7 Ulm	do	3	8 .07	7 1. 25	. 03		3.80	. 23						. 35	. 15		1.48	. 20	. 30	.02			T.	T.	70	. 45	5 T.	T.					
cis	Mississippi			. 27		.48	. 48						T.	04	.02	T.	1.40	15	T	T.	01	T	. 10	14	T.	****	T						-
River Dam	dodo	.0		119	. 08	T	. 45			****				. 44	. 20	.01	. 53	. 10		T.	.08		. 16										
k Rapids [] River Dam egama Falls	do			. 1	T.		.09							. 19	T.		. 20	T.	T.	T.	. 14		.05	. 09									
lake	. Red													. 65			****		****	****			. 30					(70)					
wood Falls	Mississippi Minnesota	4	Z T.	1. 16	. 28	1 95	3.30	. 18					000	.04	.08	10	1.46	2.40	.06	.04 T		.02 T.	02	. 10	. 02	. 62	4	T.					
wood Fallsds Landing [[Mississippi	0	0 1	4 6	3	1.35	3.40	. 10			1		.21	. 14	. 40	. 10	1. 35	1. 12	.30	.04	****	1.	.08	, 13		. 45	8						
hester II	do	7	5 .1	1 .67	. 54		2.85	.11						T.	. 44	T.	2.35	. 27	. 49					. 05		. 48	8						
charles	do																1																
Charles	do	7	7 .00	.71		- 88	2. 16							. 10	. 28	.27	1.74	****	. 46	07			.07	. 06	. 22	. 18	6						1
Cloud Paul Peter	do	0		1.60		2.64	1.08		****	****			.05	.20	.00	.51	1. 13	****	.06	.07	T.	.01	.05	.02	.04							T.	1
Peter	Minnesota	1	8	. 70)	2.00	1. 11							. 10	. 10	1. 13	. 68		.31				T.		.32	. 10	O T.						
dstone	St. Croix																																
dy Lake Dam	Minningingi		. 1	1 . 14		1	31		4				1		177																		

TABLE 2.—Daily precipitation for October, 1911. District No. 5—Continued.

Stations.	Watershed.														I	ау о	f mo	nth.													-		
Diations.	Wateralied.	1	2	3	4	5	6	7	8	9	10	11/	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Thatal
linnesota—Con.																																	
liwater []	St. Croixdo RedRainy Mississippi Minnesota Mississippido Des Moines Mississippi	.30		1.36	. 36		3. 15								.06		1. 18	. 80			-	54		. 10									7
lors Falls	do			1.30		2.40								.09	·T.		1.54	. 34					. 18			. 10							5
of River Falls	Red			.13	40	. 13							15	. 16			T						13	.04		T.	****	****		****	****	****	1
roadt Concord	Mississippi	T.		. 65	. 40	1.20	1.90							. 17	. 40	.75	2.00	. 10	. 50				T.		T.	. 40	T.						8
nebago	Minnesota	. 80	. 05	.28			2.00	. 15						. 10	T.		. 10	1.30	. 40	T.		T.	T.	.06		T.	. 21	. 02					1
nibigoshish	Mississippi	.60	.02	1. 10		.82	1.26						****	. 34	.10	.16	2. 12	. 15	. 42	T.	. 10		T.	.07	.36	T.							1
thington II	Des Moines .	1.00	.00	. 13			2.60	. 18						. 15	.01		.71	.02	. 18		.01			.06			T.	. 15					1
brota	Mississippi	.35		1.45		1.00	2.55							. 20	. 25	.88	2.50		. 64		T.		.01	.62	.17	.21	T.						11
South Dakota.			1			-								0								4			100								
		-						-00						**	10	-	. 63	90			00		T.	m		. 20					10		
oank II	Minnesota	. 2		.35			1.27	.03	****			****		. 03	. 10		.03	. 29		****	.00	****	1.	1.		. 20	****	****	****	****			F
Wisconsin.	14-70-00											- 00	1.1											- 1			-		1		-		
lan.	Wissensin				00	m	0 74	W			1				45	T	70	T	T	08			T	T	T	.51						T.	1
igo	Wisconsin Chippewa Rock Wisconsin	2		1.50	.00	65	2. 55	****				1		T.	.25		1.00	. 58	. 16	.00			T.	. 10	T.	. 15							1
it	Rock		. 16	. 69			. 25						. 22		.77											:	. 05				. 19		E
St. Germain																								.04		. 44		****			****	****	1
im.	Rock	2.3		67		T	. 18							T.	. 98	. 05	. 29										T.			1	. 18		
am. dhead nettage Grove lington	do	1.20	T.	1.33	.02	T.	.73	. 01						T.	. 48	. 02	. 45	.01	T.	. 15				.07	T.	.06	.01						
age Grove	do	. 90	T.	1.35		.01	.08	T.			.04			. 02	. 58	.04	.40	.01		.01		T.	T.								.03 T.	T	
lington	Wisconsin	1. 6		61		. 15	1.87	****	****	****			****	. 20	13	1.	1. 28	. 45	25	. 15		T.		The l		98			1	1	T		1
vangeville	Wisconsin Rockdo			1.02		. 03	. 27							. 44	.08	. 02	.04						T.				.05				. 14		-
geville	do						1 00							7		10	1 00		1 40	m	T	06	m	12	****		****			****	****	T	1
Claire	Wisconsin. Rock. do. Chippewa. do. Wisconsin. St. Croix. Wisconsin. Black. St. Croix. Wisconsin. do. Chippewa. Mississippi. Rock. Misconsin. Rock. Wisconsin. do. Dipewa. Mississippi. Wisconsin. do. Dipewa.		. 40	1. 24		62	3. 27					1		.11	.77	.03	1. 95	. 26	. 09		.04	T.	. 05	. 10	.38	. 41							1
nd Rapids II	Wisconsin	. 6	3	. 63	. 91		1.80	.20							.87	. 07	.78	. 20	. 12	. 15				. 05		. 30				****			1
ntsburg	St. Croix					T.	1.50							T.	T.		1.40		***	T,	. 10		. 10		19	. 20				****	****		1
icock field	Wisconsin	1.4	2 .0	1. 11	2 00	T.	1.90							. 30	1.00	05	2.02	. 20	. 10	****		****		. 20	. 65			1111	1				Į.
ward	St. Croix			. 48	T.	T.	1.30							. 10)	. 12	. 97	.35	.05		. 13	T.		. 20	T.								1
sboro	Wisconsin	T.	. 10	1. 17		. *	1.20				T.			1.30		. 6	. 37		. 04				.11	T.	. 07		T.				03		1
penick	do	5	0	1.50		1.00	1.60								. 30	T	1. 69		30			T		T.	10	. 00				****	.00		1
du Flambeau	Mississippi	.2	6	1.07		.42	1.30			1		T.	1::::	1.01	0.	1.0	3 . 93	T.	. 16				. 03	.01	. 13	. 01						T.	ì
e Mills	Rock	1.3	8 T.	1.78		. 02	. 12	T.			T.			. 57	. 54	T.	. 97	.04	T.					T.	T.	. 02	. 12				.04	T.	ł
caster	Mississippi.	8	0	37		. 02	2 17							. 62	1. 33	0	1 1 47	30	96	06			. 10	10		. 25	. 10				T.		1
g Lake	Rock	4	9	1.11		.06	. 10	T.						1.1	6	5 .03	3 . 18	T.	.01	.00			T.	T.	T.	. 03	.07				. 04	T.	1
her []	Wisconsin	8	5 .0	9 1.06	. 45	3	1.90	. 1	5						93	3 .0	5 1. 23	.72	.32	.08				. 08	T.	.38		T.					-
iston	do	1.4	0 .10	0 1.00				1.2	5						1.4	.20	32		. 10	. 05				. 10	. 10	08							1
dow Valley	Wisconsin. Rock. Wisconsin. do. do. Black. Wisconsin. do. Mississippi. Rock. Wisconsin. Black. St. Croix. do. Chippewa. Wisconsin.	- 7	3 . 10	1. 70	.03	2.95	1.08	.0						. 14	. 2		2.50	.20	.00	. 17	. 20			. 28	.00	. 10							
rill	Wisconsin	4	5	1.60)		3.00								30	0	2. 15	. 23	. 14	. 05				. 30		. 50							
ocqua	do	1	1	90	0.0	3	2. 10							.00	0.0	9 .0	1 1.60	. 40	. 40	. 03	. 10	.03		. 12	99	. 27		-				****	
ndovint Horeb	Mississippi	3	OT.	1. 23	. U.	09	2.00		.01			0		100	8 1. 1.	5 .00	7 . 27	- 40	.10		.00		.04	. 11	T.	. 05	.11					T.	
coda	Wisconsin	1.2	3	. 68	. 1	1	.21	.0	9						1.7	0 .50	0 .20	. 10		. 10)		T.				T.	T.					-
llsville	Wisconsin. Black. St. Croix. do. Chippewa. Wisconsin. do. Mississippi. Wisconsin. Chippewa. Wisconsin. St. Croix.	5	3	1. 2	5	. 3. 12	2								9	0	1.20	. 10	. 40		· · · ·		70	T.		.90							-
Richmond	St. Croix	T. 2	2	1. 10	T	54	2.57							11	T	1 .2	1.96	- 14	.03	T.	T.	T.	1.	T.	. 20		1						
eola k Falls	Chippewa	0	8	. 70	0.0	6 1. 75	5							.0	4 .0	3	84	. 64	. 15			. 02		. 11		.07							
tage	Wisconsin	. 1.1	7 .0	7 1. 25	2	02	. 95	.0	2					.0	5 .7	6 .0	6 . 18	. 17		. 18	5			. 03	.04	.03	T.					****	-
Edwards	Miceicginni	1.5	8	1.50	2	04	1.90	0.0	2					. 10	1.1	0 .2	4 .75	T	. 13	T.				T.	. 10			T.					
irie du Chien . irie du Sac	Wisconsin.	8	0 .0	2 .8	5	. 03	3 .34	T.						.2	0 .8	1	16	T.		.10)			T.	T.		.10						0
ntice	Chippewa			. 1.2	3 T.	1.50	.75	2						. 13	3 .1	0 .3	61.0		1.10		05	T.		. 29		. 31					T		1
nelander	Wisconsin	1.2	5	1.2	0.0	4	2.80	3				1		0	41.4	1 .0	5 1.8	21	5 . 24	.04	-00		****	. 20	****	. 04	0.0	5	1		4	3	
illsburgon Springs	St. Croix	1.0	3 .0	50	0	1.10	0									. T.	. 71	0 .40	0		T.	. 20	T.									T.	
oner	do	1	311	. 6	5 T.	45	5 . 70	11						. 0	7	1.2	3 .10	T.				T. T.	T.	. 27	78								-
nleyvens Point	. Chippewa	5	6	. 2.00	0	10	0 4.0							7	7 .3	o T.	2.14	9 . 4	2			Т.		. 19	.50								
ar Camp Dam	do			1.0	0 .0	6	2.13	3							2	3 .0	2 2.3	0	. 3	. 06	6 .00	.00	.04	. 12		.2	4						0
in Lakes Dam	do			6	0 2.0	0									0 .1	5	1.60	. 10	3	.40	. 2			10	.30								
vens Point ar Camp Dam in Lakes Dam ley Junction	Mississippi.	1.3	6 .3	4 1 4	7	. 19	7 1 1	7 0	i					1 . 3	51.1	2 . 2	21.50	0.00	.00	. 02	2			.07	.07								
oquadedesare	Wisconsin,.	T		5	1 .2	0	1.5	2						T.	2	0 T.	1.70	.30	3 .4		T.			. 15	T.	1.2	0 T.				. T.		
tertown	. Rock		. 4	01.2	5		.1.	1 .1	1						4	3 T.	T.	.14	91	T.	1000		T	. 07		.0	0	. 0	D	-	1	0 .13	4
ukesha	Wisconsin	1.6	4 T	1.5	5 T		3 0					T		T	1 4	5	1.0	8 .30	0 .11	.0/	5		4.	. 20)	.8	5						0
usauverhaeuser	Chippewa			. 1.5	3	. (*)	3.0	2							4 4 4	A . a a	- 1A - 34	3 . 34	N . 3.7			0 0 0 0 0		0.525	11 7	1 . 2	20		1		-1		
itehall	Chippewa Mississippi.	3	O T.	8	0	70	0 3. 10	0						. 7	0	- 1	0 2. 4	0	3				****	T.	. 30	1 .4	0						-
Lorenz		-					1							1																	1		
Iowa.	1	1																		1												0	
ia		. 1.6	7 .1	0	T.	T.	-18	8 .1	3 .0	1				. 4	2 .1	3	2	5 T					100		T.			. 0	H		2	2 .0	16
ona	do	1	1	3	5	- 66	7 1 7	4 .1	0			T	.2	n n	151	-1			W					- 10	41	1	- 1 - 1	LE . I	Million and				
ana		1.1	7 .0	T.	1	37	71 .00	51.1	2		0	2	T.	1.1													1 170	-	1	1	9	7	
es	. Skunk	. 1.5	4 T.	4	9	52	2 .5	1 .1	1				01	T		2	9 .4	2					. 03				0	8			1	0	
cter	do	. 1.1	5 .0	3 . 4	3	34	4 .3	8 .0	8				T.	***	0 .	10 .5	8. 10	0.8	1				. 02				0	0				4	
le Plaine mond	. Iowa	1.7	5 .0	3 .3	9	50	3 .06	1 1	0			-1	75	T		2 .6	8 .5	3	T				.0		T.	1	1	4			T		
omfield	do Mississippi Des Moines	1.4	2			67	7 .0	1 .1	2				. 73	. 5	8		26 .0	7 .0	1								2	2			3	5	
anarte	Des Moines	8	5 .0	4 .0	2	0	5 . 08	8						. 5	3	2	25						Т.				2				3		
one	do							4 0	4 0						0	14		5 0	à				T	0	0 .0	7	1	4			0000		
kingham	Cedar		0	1 4	2	. 40	0 .2	1 .0	. 0.					5	0		07 1.3	3									0	5			1	1	
rlington I I	. Mississippi.	7	0 .2	0	i	2 T.	T.	.2	0					. 2	0 .:	20 T													15		1	5 .3	15
roll	. Raccoon	. 1.1	2 .7	1 .13	3	08	8 .9	.0	8			4 7	00	2 .0	5	19 7		1.3	55	· ·					· · · ·				02		T	1	Š
one tt ckingham clington roll ar Rapids rles City ar Lake	. Cedar	- 2.2	0 .3	3 .2	T.	91	5 . 5	5 .1	0		1	4 1		8 .0	2	01	6 6	i		1			0	2	0	3	0	8					
ar Lake	do																																
umbus Junction.																																	
	LOSTO	6	0. 12	6 .0	RI	99	RI A	5 . 1	MI.	1				. 6	21	1 1							41004										48

Table 2.—Daily precipitation for October, 1911. District No. 5—Continued.

Stations.	Watershed.																																1
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22 2	3	24 2	25	26	27	28	29	30	31	The state of
ows-Continued.																																	
elaware	Mississippido	1.08	T.	. 86		. 39	. 45	T.		****				. 35	.72	.66	1.21	. 02	T.	Т.			04		. 22		.00	.06			.19	••••	5
es Moines	Des Moines .	3.4	01	96		17											10			70.0			03				T.			. 02	. 23		2
abuque	Mississippi	.33		. 48		.09	. 02	T.			****		· · · ·	- 54	. 48	.07	. 15		Т.				Г. Г.	**	T.		.05	****		****	. 13	****	2
kader	Raccoon Mississippi	1.08	.03	1.12		.35	. 20	1.		****	****		1.	.10	1.82	.35	1.			47			05		04		. 05				.06		4
ma	Wapsipini-	. 55	. 05	. 45		. 28	. 55	. 05						.18	1.45	. 50	1.50		T.	T. .			05	Γ.	. 08	08	. 10						5
therville	Con.	05		96	05	03	2 05	15						10			10	20	.05					10	05		. 05	. 20				1	5
irfield	Des Moines . Skunk	1.08	. 02	. 20	.00	.11	. 04	.09						.28	.03	.10	.02						T				. 14				. 47	T.	2
yette	Mississippi Cedar	. 83	.04	. 51		.10	. 45	****						1.10	. 22	. 65	.70	40	T. .						Γ		.12 T	35					
rest City	Des Moines .	1.20	****	. 75	.08	.05	.70	. 10	. 05	****	****		.00	.03	****	****	.03	. 85						05 .				. 11			. 15		1
rt Madison	Mississippi Iowa	. 55	T.	****			T.	.17						. 54		.10	T.			T. .		'	Γ				. 35						1
man	Iowa Mississippi	2.59	. 63	. 31	T.	. 40	.13	.18						****	1 95	. 13	.98	00	T				08	r.	r						. 32		
and Meadow	Iowa	1.06	.05	. 40		. 45	.10	T.	****					T.	. 13	T.	1.06	. 00	Т.				10	1			.02						1 3
undy Center	Cedar	1.64	.03	. 28		. 45	. 22							. 20	. 20	. 40	1.00	. 03					La la		verile .						.20		1
thrie Center	Raccoon		.02	.10		40	. 49	.00				****	62	. 20	****	.26	1.17					***	Г. 07		т.		.02	****		****	. 20		
mboldt	Des Moines.	.32		. 27		. 40	. 37	.05						.04			1.40	. 21				02					. 10				.02		1
iependence	Wapsipini-	1, 40	.08	. 45		. 27	. 15				. 01			. 35	.12	. 25				.02 .			01				T.	****		****	.27		1
lianola	con. Des Moines .	.22	.02	.17		.16	.04	.07					. 04		. 04	. 23	. 41						04				T.				.38		1
a City []	¥	0 12/2	. 30	. 02	т.														m	T		-		DA	- 1			09	1	1	.05	.13	1
a Falls	Raggern	1. 22	.04	. 45	. 20	40	. 55	.07					16	.08	.07	****	.90	. 12	T.	I					1.			.17		****	.01	Т.	
erson	Mississippi	1.13		.24		T.	. 03	.02					.10	.16		.23				T			Г.				.06				. 32		
sauqua	Raccoon Mississippi Des Moines	1.25	. 04	T.		T.	. 04	.06	T.		T.			. 20	T.	. 20	. 01						7	r.				. 20			. 30	. 26	1
oxville		69	01	00	****	16	000	****		****			****	10		00	02	****		05	***						05						1.
laire []	Mississippi Iowa Cedar	.33	.62	T.	.01	. 10	.23	.14							.18	.02		.01		.01 .				01 .				.02			. 10	.31	
shalltown	Iowa	4. 10	.14	. 19	.34	. 02	.61	. 19	. 01					T.			. 93	.08	T. -				07	09			10	.06			. 00	. 22	
son City	Des Moines	1.28	.00	. 30	****	. 30	. 32	.00	****	****		****	****	. 47	****	1. 27	. 99			***	***		04				T.			Sec.	. 28		
unt Pleasant	Skunk	. 85		T.		.05	T.							1.07		.06	T.						7	Г			. 05	. 09			.17	. 01	
scatine	Des Moines Skunk Mississippi Wapsipini-	1.56	. 15	69	.11	99	. 47	. 15						.10	. 42		1 29			T. -	***		r.	04 .	12		T	Т.		****	.20	. 25	5
w Hampton	con.	1. 32	. 02	- 04	****	. 22	. 30		****				****	1.	. 30	.00	1.40				***			**	14		*	0		****			1
rthwood	con. Cedar Wapsipini-	. 20	T.	.70		.88	. 66							T.	.14	.90	.80	.08	T. .				03		.04	10	. 13						
1	Wapsipini-	1.78	. 42	.12		.31	.07								T.	****	****				***					Г.		****		.18			-
ge	Cedar	. 65	.05	. 69		. 31	. 60							.09	. 53	.17	1.12					.14			. 10		. 10						1
aloosa	Des Moines.	. 85			****	.10	.05	. 04					.19			T.	. 31		.04				Г.								. 26		
umwa	do	1. 73	03	T.	****	.13	.05	. 09					T.	.08	. 28	T.	.51	.09	т.				04			***	.01	1111			.18		
lla	Raccoon	2.28																															
over	Des Moines .	10		. 20			1.30	. 29					T.				2.00						02				15				****		1
leeway	Mississippi	.05	****	. 81	****	.20	.71	****			****		. 10	.14	.77	1.02	. 65		T			04	06		17	03	.06						
ckwell City	Raccoon	. 35		. 30		. 55							T.	****			1.25						7	Г. -			. 10					. 10	
City	Des Moines		. 02	.28		18	. 63	.00					.02	.03	.05	.02	. 80	.07			***		02			***	T.		****		.30		
ourneyekport	Skunk	1.18		.06		.09	T.	.09			T.			. 25		.02	. 33			T. .			r				. 10				. 22		
ekport	do	. 88	.06	T.		. 04	T.	. 10		T.			97	. 45		.06	T.	T.					06	**			T 10	.08			. 34		
rm Lake	Cedar	.02	. 02	. 26	. 34	.16	.09				****		. 24	.16			1.							06 .							. 23	. 03	7
ledo	Iowa	3.63	. 18	. 25		.38	. 30	. 13					T.	. 15	.10	.10	.73	.03					06				T.				. 30		
pello	do	T.	. 12			.38		. 20					****	.50		.06							r.	01			Т.				. 41	****	1
asnington	Cedar	1. 17	.08	.12	.12	. 10	. 40	. 05	****	****	****	****	****	.12	.70		. 55	2.05										.01			.01	.12	
aukee	Raccoon	. 96	.02	. 53		. 20	.11	. 04					. 23	. 41	. 04	. 05	. 18						02				T.				. 29		
beter City	Cedar	65	T	. 55		. 23	24	T	·m·	****	****		. 25		43	T .81	1.90 T	05			***	;	Г.	**	F	***	. 18				T.	****	
est Bend	do	.03	1.	.33		. 65	. 64						T.		.10		1.72	. 00					04		02		.16						
nitten	Iowa	1.24	. 07	. 38		. 44	. 37							T.	. 32	. 29	1.00						r		Г.		T.				T.		-
apello ashington ashington atterloo	Des Moines	1.29	.00	.36	****	.16	. 11	. 10	****		****		.14	. 10	.01	.00	.04				***	***	1				1.		****		. 40	****	1
Missouri.																														-			1
rin	Mississinni	1 12		03		02		ne						17		.07				1							. 17				.32		
rinnnibaluisianaxico [[do	1.01	.01	.04		.02	T.	. 03						.10		. 10		T.									.02	.01		.13	. 19		
nisiana	do	1.15	1. 47		.12	T.								.10		. 10															. 50		
Manville	do	2.00	05	20	. 58	02	. 10	. 10	.04			****		27		. 25	****		****	***	***						T.	T.	.10		. 25	. 03	
olett	do	****																															
ffenvilleblettdaliaurrenton	do	1 10	2. 23		. 65			99							01								95								. 50	04	
rrenton	do	1. 19	.71	.00	.46	****	.01	. 22	.03	****			****		.01	. 09	****				***		00					. 09	. 02		. 22	.09	
Indiana.																			1													100	
logoville	Trognoje	01	12	23		00	67								. 86		. 42	. 23			.15	81	79				T.				. 28	. 26	
legeville ox porte mouth	Kankakee	. 68	.39	.05	.08	T.	.04	.10							. 57	. 66	T.	. 43			.09	78	81					. 10			.13	. 26	
porte	do	55	. 42	.13	.18	.01	.10	. 04							. 40	.10	. 42	.10			.08	48 .	86 .	02 .				. 10		****	.06		
mouth	do	. 65	. 36	. 03	.04	T.	.27	****	****	T.					.79	T.	. 17	. 68		***	. 13	47	59	r. -				.08			.11	. 36	1
Illinois.									1											-			*										
	Minded-					0.00	00	**						10	01	00				4		1	г				T	07			22	.06	1.
xandertioch	Illinois	. 00	01	. 04	33	T	.00	02			****	****	****	T 14	T T	.08	.03				T.	28	04	**		***	1.	T			. 34	.00	
tioch	do	2.00) (. 85			.30								. 20		. 20					09	10				T.				. 42		1
orio	do	11 69	N 017	71 660	N.	T.		T.						T.	T.		T.	T.		T.	T	01 '	r				T.	.08			. 25	.03	
rora	do	. 36	30	T.	.17	T.	T.								. 90	****	T. 00		T	1.	. 04		09	**		**	***	.07		****	. 35	. 15	
ment	Mississippi.	27	. 47		. 22		.01	. 07									.11	.26			. 08	62	37					- 1			. 27	. 01	1
rora ardstown [] ment. comington	Illinois	1. 12	. 15	. 03	. 05	. 03	·	.10		****							.08		T.		T.	50 .	13				T.	. 05			. 33		
ment oomington bro rbondale rlinville rliyle ester	Mississippi.	T.	T.		27		T.	1.40	1.	.00	****	****			****	.10	T. 17				***	33	38				***	****			. 40		
rlinville	Illinois	99	1.10	.06	. 23	T.	. 03	. 04													T.	68	13					T.			. 23		1
	Mississippi.	. 68	. 03		. 25			. 45										T.			. 20	60 .	20					. 05			. 13	.18	13

TABLE 2.—Daily precipitation for October, 1911. District No. 5—Continued.

															1	Day	of m	onth														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
llinois—Continued.																																
oatsburg	Mississippi	1.14	.04		. 16		. 08	T.						. 08									07				T.				. 45	
obdenakota	Mississippi	2.50	.03	12	. 02			. 25							91		20		****		***	. 19	. 37		****		700	****		****	T.	****
ecatur	Illinois	70	.00	. 10	41	.01	10	05		****					. 01		10	****		***	12	53	10		****	****	1.			****	. 33	.09
ixon	Illinois Mississippi	.50	.38	. 12	.06		. 05	.08				****			.19	. 15	. 10	.12		***		. 00	. 40	****	****		****	T.		****	.05	
uquoin	do	1.05			. 25		. 61		T.	. 01		T.				. 20	.01	T.				.79							T.		.10	
wight	Illinois	.75	.20	.13	.09	.01	. 57	. 04							.71		. 30					. 44	. 39				T.	.07			.30	
ast St. Louis	Mississippi		1.20	.04	.12			. 10	.01												.13	. 44	. 83					. 02	T.		.10	
dwardsville	do	. 92	.20	. 04				. 25												***	. 43	.76	***				T.				. 20	
lgin	Illinois	. 43	.30	. 05	.49																										. 01	
rafton	Mississippido	59	- 10	.00		. 35	.01	48					. 23	05	. 22		1.		****	. 02	***	60	T.			****	1.	. 04		****	. 40	
reenville	* do	1 30	2.00	.00	08		. 52	. 40				****			10		19				59	- 00	****			****					.10	
riggsville	Illinois	1. 75	T.			T	.13	T.	****	****				T.	. 10	****	.12			***	. 000	10	****	****	****			T		****	. 50	
Havana	Illinoisdo	1.30			.17	T.		. 05			****			T.			T.					. 19									.30	
Henry	do	-74	. 04	T.		. 15		. 22						T.	. 28		. 04			T.	T.	. 05					T.	. 13			. 39	
Hillsboro	Mississippi	1.32	.90		.24		. 08	. 10						T.	T.		.04				. 30	. 55	. 35					T.			. 20	
oliet	Illinois	. 65		.60		. 01	.02							. T.	.42		1.04				. 20	.70	.00	0.00			.06				. 33	
Kishwaukee	Mississippi	.82		. 44	.31	. 02	. 18								. 38	. 04	- 10					The state of	T.				.03				. 20	.18
a Grange	Illinois	. 62	. 42	.11	. 31	. 03		. 02						.24	. 18		. 65	. 02			. 13	. 44	. 57	. 03								
a Harpe	do	. 73	.10	. 51			T.	1.						. 02	.00	****		****		T.							T.	70				
anarka Salle	Mississippi Illinois	.46	.02	.47		.07	.09	. 03	••••				***	T.	.26	. 00	. 05			00	T.	19			****						. 18	.11
incoln	Illinois	1.08	.09	T	.24	.17 T. T.	T. T. T.							T			. 24	T		.00	T						.03	.06			33	****
oami	do		T.	*.	.30	T	T.	.06	****	****				T.	T.	T.	T.	*.			T. T.	. 50	04		****			.00	****	****	. 35	****
Manteno	do	. 64	. 20	.09		. 10	.05	.02	****		****				. 46		. 23	.02			.10	. 54	.54					.05		****	.20	
Martinton Mascoutah	do	. 10	. 05	T.		T.	. 37								.16		. 25	. 18			. 08	.75	. 54					. 05			. 31	.15
Mascoutah	Mississippi	1.20	.03	.01	.24			. 55							.02		T.				. 25	.78	. 25					. 05	. 02		.11	
Minonk	Illinois	1.04		T.	. 45	. 05	. 36	. 22							. 33		. 22	T.				. 34	. 14	. 01			T.	. 09			. 22	. 22
Monmouth	Mississippi	1.10		.20		.10	.02	. 14						. 20	::		****			·												
Morrison	Illinois	.78	.37	.50 T.	T.	.14	.16		·					T.	. 10	T.	.00			T							.01				. 24	.15
Mount Vernon	Mississippi	. 78	1 05	T.	. 30		. 12								.00	05	T.			***	. 12	. 31	. 39	****		****			****	****	.06	
Oregon	do	. 80	1.05	.27	.04		.08																						****	****		.18
Ottawa	Illinois						.03	. 04							. 18		. 61	****				.18	.13	****	****	****	.05	. 10			. 52	
Pana	Mississippi	.90	. 13		.12		T.	. 03						. 02	. 03		T.	T.			. 23	. 55	.37								. 25	
Peoria	Illinois	1.47	.04	. 02		.05	. 31	.10						02	T.		T.	T.			T.	. 14	T.				. 09	T.		. 05	.36	T.
Pontiac	do	· AU	. 01		. 00			.72							.05		. 39	. 01				. 35	. 42								. 25	
Quincy	Mississippi	.60	.70		.12	T. T.		. 03						. *	. 09	. 03																
Riley	do		.06	.07	.12	T.	. 10	****							. 20		.11			T. .	***	T.	.06	. 07								
Roberts	Illinois	.87	.05	70	. 19	T.	.37	. 03							. 62		. 30	T.		m	. 10	. 39	. 25				. 01	****			. 26	.06
Rockford	Mississippi	1 46	.00	10		T.	. 12	.U1		****	****	****	***	. 03	. 10	T	.02	****	****	1.	***	T.	.01		****							.14
st. Charles	do	41	.22	. 10	. 65	.02	.02	02		****		****		. 03	15	1.	20	08		.03	04	10	25	Tr			T.			****	.06	
St. Peter	Mississippi	95	1.65	.00	.10			45	Marian.			The state of		1	- 10	T	35	. 00	****	.00	10	. 50	30	**	****			T	T			
parta	do	.97	. 17					. 91	.03					. 05						.04	T.	. 95	.38		****			T.	T.		.17	
pringfield	Illinois	.60	T.				T.	. 03						05		T.	T.	T.		***	T.	. 54	.02				T.	T.		. 01	.30	
treator	do																															
ullivan	Mississippi	.73	.41		.18		. 21	.05							. 07		.15	. 03			. 43	.72	. 29								.15	
yeamore	do	. 47	.30	. 05	.50			. 15							. 25	. 25		. 30			.10		.08	. 02			****	****		****	.02	. 42
iskilwa	Illinois	. 42	T.	. 15		. 30		****				****	.00	3	. 13					10				T.				. 15			. 53	****
Valnut	Mississippi	1. 22	.41	. 55		.17	T.	.08						3	. 40		T.			. 10				. 05	****	****	T.	.01	****		. 25	. 18
Warsaw	do Illinois				.38	T.	T.		****	****	****	****		30	01	. 20	****	T	****			30		****			****	T		****	. 40	****
Windsor	Mississippi	79	.66		.01		05	02						00	.01		17	1.		****	60	81	60		****		****	1.			12	
Winnebago	do	. 84	16	.85		.06	.21	.05		****		****		09	.44	****	30	****		***	.00	. 01	.00	****	****	****	.02	****		****	. 22	.15
Yorkville	Illinois	.70		.10		T.	.10	.10						. 02	.50		.22	. 01		.02	.01	.50	.08		****		T.	T.				.10
ion.	Mississippi.	1.64				T.	.10							. 15	. 20	. 05											T.				.07	
	P. P. S.	1	1		1	-							-	1		-					-											

^{*} Precipitation included in that of the next measurement.

‡ Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for October, 1911. District No. 5, Upper Mississippi Valley.

				1	North !	Dakot	h.												Minne	sota.								
ate.		etti- nz.§§		vils ake	Lisb	on.§§	Min	ot.§§	Pemi	oina.§§	Colleg	geville.	Cro	oks- 1.55	Gra		Mot		Moorl	head.	Ne		Pine Da	River m.	St. F	aul.	Win	nibi-
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Mir
1 2 3 4	55 53 54 47 59	42 42 43 39 38	50 57 55 46 54	38 42 43 38 40	64 60 66 62 52	34 44 44 46 40	48 53 56 58 63	38 42 45 42 37	54 59 48 60 55	38 44 41 38 36	53 54 64 59 52	46 42 46 44 40	56 63 55 82 55	43 47 49 42 37	54 55 73 60 46	46 48 48 45 37	56 56 70 69 48	43 47 48 46 46	57 58 59 55 55	45 44 47 40 38	55 59 71 49 47	45 49 49 49	57 56 60 62 51	41 39 45 42 30	59 56 69 56 50	48 50 48 45 40	56 58 55 54 54	
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	67 61 59 58 63	41 42 46 42 43	66 59 52 58 62	40 47 48 49 44	72 55 56 56 56	36 36 44 41 86	78 64 61 67 66	37 37 40 35 37	70 72 70 68 66	37 42 46 44 41	65 66 66 56 54	49 48 46 47 47	68 67 57 58 62	44 46 50 45 47	71 72 59 65 61	38 40 50 46 39	72 62 71 62 54	39 45 48 46 42	71 65 59 59 60	43 46 46 45 42	66 65 69 61 61	41 45 46 49 42	67 70 64 60 56	32 36 38 40 45	66 70 56 55 58	42 47 51 48 45	69 71 61 58 58	
	62 55 45 39 38	38 30 28 30 32	61 56 51 40 37	39 35 33 36 31	54 64 56 47 42	41 36 35 32 26	68 58 50 44 41	37 33 32 35 31	58 50 47 46	48 32 34 35 34	52 57 54 48 46	47 41 41 31 37	62 57 55 45 43	48 39 39 39 34	63 50 54 47	47 43 43 35 34	53 64 54 53 59	34 38 30 30	62 62 56 45 45	43 35 38 34 28	53 63 45 48 46	48 41 41 34 34	60 58 53 46 46	43 40 34 35 36	63 63 55 51 48	48 46 43 36 38	54 56 56 47 46	-
	43 40 45 36 32	20 25 24 25 20	44 40 42 37 32	28 27 25 26 21	44 42 37 47 41	26 30 22 27 27 23	45 45 47 38 39	27 34 30 31 26	42 44 43 34 31	30 32 24 25 22	45 43 41 43 41	32 32 31 32 31	43 38 42 42 34	28 28 26 30 - 24	48 42 45 43 43	28 25 33 27 30	57 42 45 43 43	33 34 29 34 30	45 39 45 47 36	29 30 26 31 20	36 42 45 41 40	33 29 30 30 31	43 35 41 46 40	32 30 29 25 30	44 42 43 46 42	33 30 33 33 33 32	40 35 40 45 38	
	38 39 48 34 37 20	15 8 9 18 10	38 38 47 34 34 18	19 15 23 16 11 8	40 42 54 47 40 34	11 12 12 17 15 17	41 42 51 36 41 22	18 15 18 24 22 17	38 26 40 36 40 39	15 11 14 12 10 14	40 38 46 48 41 39	24 24 25 30 21 22	36 37 48 38 32 25	18 16 22 27 16 12	36 43 45 54 49 40	29 24 23 28 30 20	42 43 51 53 43 40	26 20 21 30 19 15	40 40 52 44 32 28	16 16 20 21 18 14	40 42 46 54 46 41	30 23 23 25 26 18	38 48 45 44 38 33	12 16 24 31 13 10	39 41 45 51 42 38	29 26 25 32 24 22	37 38 44 43 38 30	
ns	50.9	31.0	49.7	33.3	53.4	31.3	54.9	32.8	52. 4	32.0	51.7	36.7	51.1	35. 6	54. 4	36. 1	55.5	35.7	52.9	34.1	52.3	36. 6	52.4	31.8	53.0	38.7	51.7	3
						V	Viscons	in.											1	I	owa		1					
ite	Dele	van.	Eau	Claire.	LaC	rosse.	Mad	ison.	Mau	ston.	Spoo	ner.	Wau	sau.	Algo	na.	Ced Rapi		Char		Dav		Mot		Dubt	ique.	Keo	ku
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	M
	59 56 72 67 54	50 51 51 50 36	59 58 63 64 53	47 46 50 50 36	56 59 73 59 51	48 51 53 41 38	55 56 72 61 51	50 50 50 48 42	54 55 66 67 54	46 49 50 52 36	58 62 60 53 48	42 37 47 40 38	53 55 55 55 55 51	45 45 46 44 32	52 57 71 62 51	51 49 50 44 41	59 59 80 60 66	44 53 53 50 42	54 58 76 57 56	49 51 50 41 40	64 60 84 64 59	55 54 55 47 44	60 59 78 61 59	53 53 55 50 46	57 58 76 60 54	51 52 53 46 41	70 60 86 66 61	
	69 55 60 63 60	49 43 32 40 50	51 62 63 61 64	42 44 34 34 40	53 57 61 61 61	47 39 36 39 45	63 53 61 62 61	47 45 40 45 49	55 50 60 60 64	43 45 32 35 42	52 56 62 62 64	40 33 35 36 40	48 56 63 63 58	41 42 31 34 42	51 57 61 63	45 41 30 37 37	66 55 60 62 62	45 47 37 37 40	64 54 58 63 63	46 37 33 38 45	78 57 59 60 63	50 44 40 43 48	69 51 60 61 62	48 47 40 38 48	69 56 60 62 61	47 44 34 42 47	81 54 59 59 65	
•••	69 71 63 65 61	48 37 38 50 49	70 75 61 63 59	38 37 46 50 44	66 72 55 63 55	42 40 49 47 45	65 69 57 61 57	48 49 47 50 49	64 70 60 62 57	40 40 42 50 42	66 71 56 61 54	40 37 42 48 47	66 72 70 53 56	44 37 44 48 50	68 68 69 61 58	44 48 55 44 42	68 70 60 60 66	44 43 43 52 41	67 70 60 64 60	46 40 54 48 44	68 71 57 61 68	46 45 50 48 43	68 72 67 61 72	46 54 56 48 47	66 72 55 63 60	43 42 48 48 43	70 72 60 64 74	
•••	69 58 57	52 47 39 44 33	63 64 55 54 49	52 47 43 35 32	67 64 60 58 49	54 48 46 39 35	65 61 67 57 54	52 51 47 45 39	64 63 65 56 54	52 48 44 48 32	59 51 53 50 50	40 40 32 32 33	60 61 59 59 59	50 49 44 38 30	67 64 58 53 49	50 42 44 34 32	71 64 71 57 51	43 52 49 46 39	68 64 62 55 48	51 46 45 38 34	71 67 70 59 56	53 49 49 46 42	63 68 68 57 50	53 48 46 44 37	70 64 70 56 54	53 48 47 42 39	68 66 70 54 53	
•••	46 47 45	35 37 38 25 32	48 42 41 45 47	31 31 34 25 36	47 49 46 42 47	34 32 32 29 35		38 35 34 30 37	48 48 45 44 45	32 30 36 27 38	43 45 40 42 40	32 25 27 25 24	48 48 46 44 40	- 33	43 44 46 53 47	28 25 29 30 33	47 55 48 58 50	34 30 30 30 30 32	46 43 45 48 47	29 27 29 28 36	47 55 51 57 54	36 33 36 35 38	47 51 53 64 57	34 31 34 36 41	47 52 46 50 51	37 33 35 31 37	46 57 53 62 57	
•••	47 52 44	28 25 23 28 34 32	37 43 45 54 42 42	25 22 22 32 28 28 22	38 42 46 55 48 41	30 27 24 32 32 32 27	38 42 43 53 45 40	30 28 29 30 37 32	40 38 43 53 46 40	30 25 23 28 28 28 28	34 39 48 50 39 35	13 17 21 21 21 21 14	38 38 42 50 49 39	29 18 23 32 28 29	40 41 45 53 49 39	30 24 19 27 34 19	41 43 46 53 43 42	35 29 26 26 30 31	36 42 46 54 51 39	30 26 24 29 32 26	48 46 48 53 44 43	30 28 32 32 42 30	42 45 48 54 45 43	33 31 26 30 40 28	39 43 46 54 45 44	29 29 27 31 42 31	45 44 49 48 45 45	
	57.3	39,5	54.7	37.3	54.9	39.2		42.0		38.5		32.9		37.2							59.4			42.6			60.1	4

TABLE 3.—Maximum and minimum temperatures for October, 1911. District No. 5—Continued.

		T				-							Illir	nois.		1					
Dat	e.		nibal, lo.	In	orte,	Ca	iro.	Gre vil	en- lle.	Las	salle.	Monn	outh.		t Ver-	Peo	oria.		ing-		nne- go.
	and the second	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
		81 63 88 68 65	63 58 60 55 52	67 58 77 75 67	50 50 50 63 49	85 88 89 77 78	69 73 71 62 55	72 72 85 76 68	65 62 62 54 48	69 58 85 66 55	56 54 54 49 43	74 60 86 72 58	54 53 53 52 41	76 77 89 77 74	60 67 64 62 48	74 63 86 66 59	57 54 55 48 42	73 69 86 68 62	64 57 59 54 48	61 57 80 72 55	56 56 47 31
		83 54 58 60 66	54 50 46 49 44	78 62 60 63 65	56 41 34 42 52	87 73 56 60 69	63 53 52 54 57	85 72 55 62 68	59 52 48 52 52 52	80 57 60 59 63	52 45 40 47 49	82 56 61 62 63	53 46 36 39 49	89 59 57 60 71	50 55 49 51 54	82 57 58 60 66	53 45 39 43 47	84 59 59 62 66	59 48 44 52 53	68 56 60 65 65	41 42 31 42 41
		71 73 69 71 79	48 53 55 54 53	60 65 65 59 63	48 40 42 50 45	72 74 70 80 83	61 59 53 56 64	72 73 68 76 78	51 51 52 55 55	67 72 65 64 68	43 43 43 53 43	71 73 56 66 73	42 43 48 48 48	72 72 69 77 80	49 50 47 50 55	70 72 64 69 72	42 41 46 45 42	70 70 67 71 73	48 50 50 53 48	69 72 62 65 64	4: 4: 4: 5: 4:
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		47 58 55 61 61	40 33 36 35 46	52 48 45 40 60	42 39 36 29 34	50 57 60 61 67	37 37 41 38 43	46 52 53 61 64	40 37 36 36 38	50 54 51 56 58	39 39 38 32 43	46 57 54 59 52	34 31 32 28 40	49 55 56 59 68	45 36 40 30 32	46 55 52 58 61	38 35 30 27 40	49 54 53 58 62	39 37 36 35 38	49 53 50 50 53	3 3 3 2 3
			36 34 35 31 43 36	50 47 46 51 44 47	34 30 27 25 32 42	69 53 54 55 61 55	46 39 40 43 48 44	62 48 47 51 52 51	42 36 37 39 45 38	51 44 48 54 45 48	33 30 30 33 42 37	50 49 50 53 45 45	29 29 29 29 29 37 35	59 43 50 55 57 50	35 39 37 38 41 45	49 45 49 54 46 46	34 30 28 25 42 30	54 44 48 50 49 48	38 34 37 34 43 35	43 43 46 53 46 43	3 2 2 2 2 3 3
		61 61 47 45 49 48 50 48	35 46 36 34 35 31 43	40 60 50 47 46 51 44	29 34 34 30 27 25 32	61 67 69 53 54 55 61 55	38 43 46 39 40 43 48	61 64 62 48 47 51	36 38 42 36 37 39 45	56 58 51 44 48 54 45	32 43 33 30 30 33 42	59 52 50 49 50 53 45 45	28 40 29 29 29 29 29 37	59 68 59 43 50 55 57 50	30 32 35 39 37 38 41	58 61 49 45 49 54 46	27 40 34 30 28 25 42	58 62 54 44 48 50 49	35 38 38 34 37 34 43		50 53 43 43 46 53 46

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
5 Data are from standard instruments not supplied by the U. S. Weather Bureau.
5 Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

GENERAL SUMMARY.

The Indian summer weather that usually characterizes October in most of the Missouri River drainage area was lacking, and in its stead there was a deficiency in sunshine, more than the normal amount of precipitation in a large part of the area, and during the latter half of the month the temperatures were unseasonably low. The general conditions, however, were not unfavorable for the interests most directly affected by the weather. The rains kept the flow of water in the small streams up to a desired stage and materially increased the supply stored in irrigation reservoirs, while warm weather during the first half of the month was favorable for vegetation, and when frosts became general during the latter half they were too late to cause any material damage.

TEMPERATURE.

October, 1911, can be divided into two distinct temperature periods. The first half was warm and the latter half was sufficiently cold to place the month, if the monthly means alone are considered, in the class of unusually cool Octobers. In the Osage drainage area and in that portion of the Missouri Valley lying to the east of the mouth of the Osage River the mean for the month was not far from the normal, but in the remainder of the district there was a very general deficiency in temperature that was most pronounced in northwestern Iowa, western Nebraska, northeastern Colorado, and south-central Montana. During most of the first half of the month the daily mean temperatures were above the normal, and on the few days having a low mean the deficiency was caused almost entirely by low day temperatures, a result of cloudy, rainy weather. The warmest weather in Montana and Wyoming was on the 8th and 9th, while in Iowa and Missouri it was on the 2d and 3d; in the territory between these regions there was no well-marked period of high temperatures, and the warmest day at the individual stations occurred on dates varying widely between the 1st and the 15th. In Montana, Colorado, Kansas, and Missouri there were some stations at which the thermometer readings were 90° or higher, but the average maximum for the month in both Kansas and Missouri was between 80° and 90°, while in Montana, Colorado, and the remainder of the district the average was between 70° and 80°. The highest reading was 94° at Mount Vernon, Mo., on the 2d. The latter half of the month was abnormally cool, and there was a notably cool period that comprised the 21st and 22d, but the lowest temperatures occurred from the 27th to the end of the month. The line of freezing temperatures extended almost as far southeast as the mouth of the Missouri River, although there were numerous localities in Missouri and several in eastern Kansas in which the lowest readings were above 32°, due doubtless to some topographical cause. In Montana, Wyoming, Colorado, Nebraska, and the Dakotas there were sections in which the temperature fell to zero or lower. The lowest was 10° below zero at Medora, N. Dak., on the 31st.

PRECIPITATION.

Precipitation was general on the first 6 or 7 days, and the greater part of the fall for the month occurred in this period. For several days before the 10th in the western part of the district, and before the 11th in the eastern part there was a period of fair weather. During the remainder of the month there was a large percentage of rainy or snowy days. Kansas, southeastern Nebraska, and a few localities in the rest of the district had a deficiency in precipitation, but in by far the greater portion of the area there was an excess. The greatest fall for the month was 10.26 inches at Dubois, Nebr., and the greatest fall in 24 consecutive hours was 8.01 inches at the same place. Snow fell as far southeastward as the mouth of the Missouri River, but it was very light and scattered in the lower part of the valley. It was heavy in the mountain country, and in the mountains of Montana there was more on the ground at the end of the month than is usual in October. The greatest amount for the month was 31 nches at Woodrock, Wyo.

RIVERS.

Stages of the streams were above the normal during the first 20 days. The small watercourses were higher, proportionally, than the larger ones, and almost all of them reached their maximum height during the first week. At the end of the month the amount of water stored in the Belle Fourche Reservoir in South Dakota was 17,000 acrefeet, an increase of 6,000 acre-feet during the month; the irrigation season closed October 10. The Missouri River at Hermann, Mo., 103 miles from the mouth, rose until the 7th, then fell very gradually; the Hermann stages were higher, proportionally, than in the main stream above Jefferson City, Mo., for a considerable portion of the water at Hermann was received from the Osage River, over the watershed of which the rains were especially heavy in September. At Glasgow, Mo., above the mouth of the Osage, the *Chester*, one of the boats of the Kansas City Transportation Co., bound for Kansas City, was held at the end of the month on account of lack of water. At St. Louis navigation interests had a more favorable water stage than during any other October for 10 years; this was due to the volume furnished by the Illinois River and the Mississippi above the mouth of the Illinois. The same storms produced the rains that caused the rise in all 3 of the rivers—the lower Missouri, the upper Mississippi, and the Illinois—but the greater slope in the Missouri caused its wave to pass St. Louis in advance of the highest water from the upper Mississippi, and considerably in advance of the flood from the Illinois, which was unusually high for the season and was in flood in the lower reaches until October 31. While the comparatively high stages at St. Louis were beneficial to navigation they caused considerable anxiety to the engineers engaged in the construction of the St. Louis municipal bridge. Ex-ceptionally favorable stages for bridge work have been the rule since the ice gorges moved out in January, 1910, and the piers for the municipal bridge were completed sometime ago. False work was extended out from the Illinois shore last summer, and the October rise caused rapid scouring around the piling. An attempt to stop or check the scouring was made by dumping material into the river above the piling, and this, or the cessation of the rise, had the desired effect.

TABLE 1.—Climatological data for October, 1911. District No. 6, Missouri Valley.

			years	Temp	peratur	e, in	degre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	days,		8ky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, ye	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevailing wind cition.	Observers.
Wyoming.																				dennity at the me
rapahoearnum	Fremont	5,500	6								1 95		0.68	7.2	·	91 17		6	w. w.	A. E. Dietz. Thos. Freeguard,
asin	Bighorn	3,862	12	47.3	0	79	8	8	31	43	1.25 0.54	+ 0.18	0.27	2.5	2 9	27	8 2	2 4	nw	O. J. Robertson.
ennett	Carbon	7,500	2		• • • • • • • • • • • • • • • • • • • •						3. 19 2. 80		1.05 0.60	7.0	9	18	9	4	W. sw.	Chas. C. Young. U. S. Forest Service.
ig Creek Station urns sper entennial	Laramie	5,400	2																	Alex. Hastie. M. C. Cook.
sperentennial	Albany	5,101 8,074	8	45.8 38.3		82 65	10	9	19	39	2.28		0.69	9.5	9	13		12 11	sw.	M. C. Cook. Louis A. Gregory.
levenne	Laramie	6,088 5,282	10	42.6	- 2.7 - 2.7	74	14	1 13 8	21	39 38 48*	0.95	+ 0.23 + 0.53	0. 22 0. 62	2.1	9 8 5	13	11 7=	7 5a	nw.	U. S. Weather Bureau.
nugwaterark	Park	4,320	5	43.7		73	14	17	28 19 21 28 27 27	30	0.60	T 0.00	0.35	5.0	4	16	5	10	ne.	A. H. Woolever. Chas. A. C. Snow. D. A. Tinkcom.
odv	do	5,000 6,828	4				8.	9	27	42	0.22		0.08	0.8	8	13	10	8	w. nw.	D. A. Tinkcom. Jas. Smith.
azy Creekome Lake	Sheridan	8,821	3 2	27.8		56	8 9	- 10 0	28	35	2.25		0.70	18.5	6	16	12	3	sw.	Abé Mills
ouglasubois		4,793 6,909	4			74	8 8	0	28 26 26	44	1.90 0.41		0.95	0.4	8	14	14	3 20	w.	Henry C. Miller. Dr. F. H. Welty.
ubois atons Ranch	Sheridan	4,600	6 2	42.80		86	8	8	27	440	1.57		0.58	11.0	5 5	18°	8°	2e 5	n. n.	F. A. Eaton. M. R. Hunter.
k Mountain	Carbon	7,322	6	90.0							2.03		1.30	4.5	5					. Wm. Richardson.
ncampment	Natrona	7,322 6,400	2 2	38.8s 40.0		70	13†	7 4	21 27 27 27 21	40s 37	2.38 0.97		1.65	6.0	6	20	6	5	SW.	U. S. Forest Service. Frank Jameson.
ort Laramie	Laramie.	4,270	33	44. 2 32. 9	- 2.5	80	91	- 12	27	49 43a	0.97	+ 0.27	0.31	2.1	4 2	17 17*	11	3 5	W.	John Hunton.
ox Park	Bighorn	4,312		40.5	******	76	8	10	27†	44	0.45		0.18	1.0	3	19	5	7	w. nw	U. S. Forest Service. L. E. Watson.
illetteorse Creek	Crook	4,546	5	41.6		76	8	18	28	36	2.04		0.60	5.0	8	15	9	7		S. D. Perry. U. S. Forest Service.
unters Station	Johnson	8,000	5	33. 2		72	8	0	26	40	1.11		0.45	7.0	5	16	7	8	W.	Do.
yattvillereh	Bighorn	4,632 5,050	12		- 3.2	82	8	7	31	45	2.96		0.81	10.0	6	15 16	11	5	w. nw.	William Booth. P. L. Ford.
irtleyirwin	do	9,187	7 3					1	27		1.82		0.68	10.0	6	22	4	5	nw.	D. M. Zum Brunnen. C. L. Tewksbury.
nowles	Crook	4,500	2								0.86		0.29	4.2	8 7					. Geo. A. Knowles.
agrange		4,510 5,372	19	40.1	- 2.0	69	9	12	21	39	2.64 0.73	- 0.32	0.78	3.4	6	20	6	5	nw. ne.	Owen Shupp. U. S. Weather Bureau.
ramie	Albany	7,188	20	39.7	-2.0 -2.2	70	91	9	28	40	1.36	+ 0.53	0.45	0.5	7	24	2	5	se.	University of Wyoming.
olabama Ranch	Park	6,878 7,052	10 7	35.6		69	14	- 8	30	46	0.40		0.15	3.0	4	12	15	4	w.	. C. A. Cowdin. Mary E. Painter.
ovell	Bighorn	3,825 5,007	21	42.3 39.8	- 4.8	79	8	- 11	28 26	49	0.48	+ 0.01	0.22	2.0	3	11	9	11	n.	R. Fred Harrison. D. E. Goddard.
usk anville ooreroft	do	5,050	1								2.36		0.80	8.0	7	20	8	3	W.	C. A. Sherman.
oore	Albany	6,000	10	43.2	- 4.3	80	10	10	31 20	631	1.61	+ 0.21	0.45	0.4	7	17	96	11 6s		C. T. McCampbell. Edwin Moore.
ewcastle	Weston	4,319 5,735	5				9	10	27	36	0.99	+ 0.39	0.48	1.5	7	12	13	6 7	nw. sw.	Dr. S. W. Johnson. U. S. Reclamation Service
athfinderhillips inebluff	Laramie	4,900	8																	. Mrs. Arthur Rugg.
ine Ridge	Crook	5,038	.8								2.78		1.28	3.0	7	7	12	ii		J. E. Altaffer. C. L. Betty.
owellambler	Park	4,376 9,332	4	42.4		76	91	12	27	40	0.39			0.2	6	9	18	4	n.	U. S. Reclamation Servi U. S. Forest Service.
awlins	do	6,748	9	40.1	******	64	91	10	28 28	36	2.04			3.0	9	21 21	6	4 2	w.	E. J. Ehrenfield.
ocky Point	Fremont	4,960	2	41.5	• • • • • • • • • • • • • • • • • • • •	76	9	11	28	44	0.94			2.0	5 8	13	5	13	e. s.	F. H. Allyn. P. Woxen.
aratoga	Carbon	6,785	13	39.8	- 3.5	69	8	10	21	37	2.20		0.87	5.5	8	19	7	5	sw	G. Frederick Clark. U. S. Forest Service.
heridan	Sheridan	3,790 3,790	16	31.01 41.0	- 3.8	82	9 8	- 2	27	51	1.22	+ 0.23	0.87	3.0 5.6	10	10	5	16	w. nw.	U. S. Weather Bureau.
hoshone Dam	Park	5,385	5	45.0 37.4	- 9.2	. 79	8	16	26	36 53	0.31	+ 0.60				12 15		2 16	w. n.	U. S. Reclamation Servi Joel C. Smiley.
outh Pass City	Fremont	7,873		32.6		62	8	0	28	46	1.23		0.48	1.9	111	15	9	7	SW.	John Sherlock.
hermopolis	Fremont	4,350	7	42.8			91			35 51	1.35		0.60	0.5		15	7 11 24	9	w. n.	Geo. W. Ashdown. A. L. Duhig.
erona	SheridanLaramie	4,360	2	43.8			8	15			2.00 1.33		0.81	4.5 5.3	5 7	19	24	5	nw.	O. A. Roode. A. DeF. Snively.
lants Ranch	Carbon	7,400	1																	. Ira G. Wiant.
Voodroek	ParkSheridan	5,375	2	42.5		. 74	8	10			0.75 2.36		0.50	T. 31.0	9	19	10	5	W. SW.	Thos. S. Harrison. U. S. Forest Service.
VorlandVyncote	Bighorn	4,270		42.1				11	29 27 27	49 50	0.64		0.46	4.0	6	17 22	8	8	nw.	Prof. B. C. Buffum. U. S. Reclamation Servi
ellowstone Park	. Yellowstone Park.	6, 200	23	35.6	- 5.9	69	8	5	27	37	1.17		0.56	5.9	9	11		10	SW.	U. S. Weather Bureau.
airview Dome	do	7,000	6 5	32.8 33.0			8 7	- 7	27 29	48 53	0.84		0.25	6.0		24 12	10	7 9	SW.	U. S. Army. Do.
ountainallatin	do										1.20		0.80		6		5	6	n. w.	Do. Do.
rand Canyonake Yellowstone	dodo	7,900	7	37.5 31.6			10	1 3	27	37	1.77		. 0.55	6.5	4		0 6	8	sw.	Do.
orrisiverside	do	7,525 6,500	7	30.5		. 64	8	- 5	27	53 68	1.35		. 0.38			20	6	5 15	nw.	Do. Do.
vlvan Pass	do	7,000	4			. 70	9	5	29 27 21 22 22 27	68	1.79		. 0.31	15.0	8	20	0	11	w. sw.	Do. Do.
humbower Falls	do	7,772 6,250		32.4			8	5	21 22	† 41 52	1.68						2	5 7 7	W.	Do.
pper Geyser Basin	do	7,395	7	35.3			8	3	27	48	0.90			9.0	3	23	1	7	SW.	Do.
Montana.		1																		W
del gricultural College	Cascade	5,200 4,700	13			77		11 15	26	38		+ 1.26					6	8	W.	Mrs. B. F. Burch. Prof. E. Burke.
ugusta	. Lewis and Clark	4,071	13	40.6	- 5.3	80	7	5 10	26 27 27	† 36 53	2.39	+ 1.90	1.43	3.4	6	21	4	6	W.	C. C. Covington. U. S. Reclamation Servi
abb adger Creek	do	4,461		41.2			9	10	21	46									n.	Do.
ald Butte	. Lewis and Clark	6,500 4,072	2	44.0			8	8	27	51	2.63		1.16			13	3	14	w.	M. W. Alderson. F. A. Severance.
igtimber Creek	do		. 2								. 0. 92		. 0.40	6.5	0		10	4	W.	J. T. Mjolsness. C. S. Bell.
illings	Taton	4,260	16	43.0		-	8	11 3	27	56 42							10	4	w.	Adolph Aman.
loomfield	Dawson		. 3				-					+ 1.78								E. B. Chaney.
oulder Nursery	. Beaverhead	6,060	17 5 3 5	41. 2 29. 4		75 72 78 81	8 8	- 4	27 27 28	50	2.77		. 2.04	18.0	1 4	19	7	5		B. B. Lawrence.
ridger	Carbon. Yellowstone	3.664	1 3	41.6		78	8	9	28	43	0. 42		0.00	2.8	4	19	9	12	n.	L. E. Gard.

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

			years.	Tem	peratur	e, in	degr	ees Fa	hren	heit.	Pre	cipitatio	n, in t	nches.	lays,	0.0	Sky	7.	direc.	
Stations.	Counties.	Elevation, feet.	Length of record, ye	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy	5 %	Number of part-	Number of	at d	Observers.
Montana-Continued.																				
Busby Busteed. Cabim Creek. Canyon Ferry. Cascade. Chessman Reservoir. Chester Chinook. Clearcreek. Clomons. Clydepark. Conrad. Copper. Crow Agency Culbertson Cut Bank Denton Dirty Creek. Dry Creek. Dry Creek. Dry Creek. Dry Wolf Camp. East Gallatin River. Ekalaka. Elkhorn Fallon. Fish Creek. Fort Benton Fort Shaw. Fort W. H. Harrison Foster. Garnell. Glasgow Glendive. Goldbutte. Grabam. Grayling. Great Falls. Halfway House Harlowton Havre. Helena. Highwood Huntley Jones Canyon Knobles Ranch Lewistown Lowetree. Malta. Medicine Lake Melstone. Mildred.	Sweet Grass Beaverhead Lewis and Clark Cascade Lewis and Clark Chouteau .do	3, 644 3, 361 5, 275 3, 140 2, 502 4, 672 4, 672 3, 041 11, 927 3, 700 3, 500 6, 000 6, 576 2, 208 8, 500 6, 000 2, 630 3, 500 2, 630 3, 500 4, 004 5, 500 2, 062 2, 062 2, 062 2, 062 2, 062 2, 063 3, 500 4, 165 2, 165 4, 110 4, 110 4, 110 4, 110 4, 110 4, 110 4, 120 4, 280 2, 240 2, 290 2, 200 2, 200 2	133	42. 2 41. 5 44. 4 36. 3 41. 6 40. 4 41. 6 43. 0 44. 7 45. 0 44. 8 44. 7 44. 1 37. 8 48. 2 44. 8 44. 8 44. 8 44. 8 44. 8 44. 8 44. 8 44. 8 44. 8 45. 0 45. 0 46. 0	- 5.2	81 75 83 70 79 821 79 84 85 86 87 88 87 88 87 88 87 88 87 88 87 88 87 88 87 88 87 88 88	7 8 8 8 9 8 8 8 9 9 7 7 8 9 8 8 8 9 9	13 12 7 9	277 288 297 311 300 277 255 311 277 288 288 277 311 311 311 277 277 311 311 277 277 277 277 277 277 277 277 277 2	48 43 43 35 47 43 46 51 59 48 39 57 44 44 45 44 46 46 48 39 57 48 48 48 48 48 48 48 48 48 48	1. 200 0. 91 1. 300 0. 91 1. 300 0. 91 1. 300 0. 55 1. 022 1. 102 0. 66 1. 41 1. 102 0. 66 1. 41 1. 165 0. 87 1. 165 0. 87 1. 44 1. 40 1. 60 1. 63 1. 44 1. 40 1. 60 1.	+ 0.27 - 0.35 + 0.72 - 0.03 + 0.62 + 0.86 + 0.25 - 0.05 + 0.31 + 0.30 + 1.58	0. 20 0. 65	9.5 20.3 20.4 22.4 22.4 22.4 22.4 22.4 22.0 2.5 2.5 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6	88 66 72 12 33 32 28 88 88 88 33 22 77 99 99 111 59 99 110 22 4 4 116 99 116 116 116 116 116 116 116 116	200 201 211 166 222 211 111 188 188 188 188 191 222 200 166 167 168 169 169 169 169 169 169 169 169 169 169	5 7 7 3 11 12 6 6 7 7 8 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6 4 4 7 4 4 4 7 4 4 4 7 4 4 4 7 4 4 4 7 4 4 4 7 4 4 4 6 6 6 9 9 8 8 4 4 4 6 6 6 8 8 1 1 1 1 1 5 5 5 5 9 1 1 2 4 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 8 8 1 1 1 1 3 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	W. D. W. W. M.	W. M. Leonard. E. C. Leonard. Joseph Berthelote. J. S. Rue. P. Kerzenmacher. S. H. Bauman. Gordon Deans. Joseph Muir. U. S. Weather Bureau. Do. W. S. McCord. U. S. Reclamation Service James McCune. F. H. Knoble. W. W. Watson. E. Wilson. U. S. Reclamation Service J. S. Collier. J. S. Collier. E. J. Parkinson.
Mildred Miles City. Norris. Nye. Olsen Creek Pipestone Pass. Poplar Red Lodge. Renova. Ryegate. Seville Shelby Sidney Spokane Ranch Springbrook Stearns. Sunlit Farm Sun River Canvon	Custerdo do Madison Sweet Grass Jefferson do Valley Carbon Jefferson Musselshell Teton do Dawson Lewis and Clark Dawson Lewis and Clark Teton Teton Lewis and Clark Teton Lewis and Clark Teton	2, 371 4, 845 6, 345 7, 000 2, 020 5, 548 4, 383 3, 640 3, 960 3, 276 4, 500	2 20 5 3 3 3 26 12 13 2 3 1 10 2 1	47. 4 43. 3 38. 2 44. 2 38. 4 41. 6 42. 7 42. 0 44. 0 42. 6	+ 0.9	84 72 78 80 78 80 83 80	8 8 8 8 8 7 7 10 9	15 16 1 2 1 9 13 5	31 26 28 31 26† 27 28 25 31 30 27 26	34 43 50 36 53 49 49 47	1. 67 1. 18 1. 05 0. 84 1. 48 1. 27 0. 74 1. 95 1. 68 2. 38 0. 80	+ 0.13 + 0.46 - 0.35 - 0.03	0.80 0.52 0.31 1.25 0.60	T. 0.5 7.5 12.0 30.7 17.5 1.0 5 1.0 4.0 3.0 1.0 2.8 2.3 T. 1.0	5 8 8 6 7 6 2 8 5 7 4 3 7 5 9 3 2	9 13 17 21 9 16 14 15 17 25 0 12 13 12a 17 14 31	18 10 3 3 10 9 10 5 6 0 29 7 13 6 6 3 7	8	s. e. w. nw. nw. se. sw. w. nw.	E. J. Parkinson. Leon B. Clark. U. S. Weather Bureau. Madison River Power Co. F. L. Bryant. Robert Olsen. Mrs. T. Klermeyer. H. M. Cosier. I. A. Draper. F. B. Elmer. H. Scherfenberg, U. S. Reclamation Service C. D. Kicher. Fred W. Arndt. O. E. Penwell. Mrs. H. L. Miller. J. W. Hardgrove. C. R. Noyes. U. S. Reclamation Service
Trail Creek	Park.	4,066 2,050 6,000	6 3			86	9	14	28	49	1.06		0. 28 0. 63 0. 65	0.5	6 5 10	14 21°	3 2ª	14 74	w. w.	M. S. Carpenter. U. S. Reclamation Service A. Weidenbauer.
Warm Springs Creek Warm Springs Creek Wheaton White Sulphur Springs Vilder Volf Creek	Fergus do do Teton Madison Broadwater Madison Musselsheli Meagher Fergus Lewis and Clark	4,650 5,000 5,880 5,600 7,500 4,000 6,376	17 5 23 2 2 2 3 8 2	42.6 43.0 38.2	- 5.0	80 84 78 69 82 74 85 79	8 9 8† 8 8 8 8 9 8†	15b 7 13	26 28 25 27 27 27 28 26†	42 32 49 ^b 40 50 39	1. 19 0. 91 0. 92 1. 05 1. 46 1. 57 1. 08 0. 56 0. 72 2. 59	+ 0.06	0. 48 0. 40 0. 37 0. 22 0. 59 0. 70 0. 12 0. 42 0. 91 1. 53	7.5 0 3.4 4.5 2.6 11.6 0.8 T.	6 3 5 13 8 7 8 3 7 9	21 21 16 16 15 10 21* 10 17 15 13	6 5 12 7 10 7 3 13 7 12 13	4 5 3 8 6 14 6 8 7 4 5	w. w. e. e. nw. sw. w.	D. Bushnell. P. W. Korell. B. M. Bean. H. J. Saunders. M. Mailand. D. L. Dolg. M. D. Lytle. Irvin Story. P. R. Wild. J. Rogers. A. J. Reed. Anna Kinman.
elfield	Oliver Billings Stark McLean	2,576 2,583 2,082	5 5	42.4			8 9	9	27 31	58	1. 52 1. 52 2. 28		0.75 0.45 1.40	0.2 0 0.2	6 10 7	14 17 1	9 12 8	8 2 22	nw. nw. w.	J. B. Hagelbarger. D. J. Steiner. W. F. Gobius.
ronchoiekinson.	Mercer	1,674	38 4 6 19	42.8 -			8	ii	2-	38	0. 71	- 0.32	0.75 0.37 0.57	T. T.	6 12 2 8	16 8	8 4 9	11 14 19	nw. nw.	U. S. Weather Bureau.
dgeley pping	Lamoure	1,468	10	42.1		82 72	8	12 11	30	39	0.41	- 0. 57	1. 46 0. 17 0. 70	0.9 T.	8 4 6	3 9 17	18 5 2	17	nw. nw. e.	J. A. Beisel. L. R. Waldron. O. A. Thompson. M. E. Uggen. W. R. Shortridge.

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

			, year	Tem	peratur	e, in	uegre	es Fal	1		Pre	eipitation	, in in	ones.	day.		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	120	Number of rainy 0.01 inch or m	Number of clear days.	of pe	cloudy days.	Prevailing wind tion.	Observers.
North Dakota-Contd.																				March or one A
ullerton arrison aley ettinger oward umestown amoine c Henry	McLean	2,253 2,275 1,309	13 2 4 5 5 24 4 2	40. 2 43. 8 41. 7	- 2.3 - 2.5 - 2.3	80 75 77 77	11 8 8† 8† 8 8† 8	12 11 4 12 0 12 9	27 26 27 27† 31 27 27 27	36 38 50 48 37 39 38 36	0.96	- 0.53 + 0.52 - 0.11	0. 29 0. 25 0. 32	0.3 0.2 1.0 T. 1.5 0 T.	5 6 5 3 5 9 3 9	10 12 13 12 10 11 17	5 9 10 5 8 5 1	16 10 8 14 13 15 13 13	nw. nw. nw. nw. nw. ne. nw.	F. O. Alin. G. L. Robinson. A. O. Lawrence. W. R. Lanxon. C. P. Amshaugh. Thos. Pettigrew. E. V. Virgin. John Knox.
armartharstonmoorelvilleelvilleelvilleelvilleelpoleone	Bowman. Stutsman. Billings. Foster. Hettinger. Logan.	2,225 1,500	4 4 15 14 5 20	38.0 43.6 44.4	- 1.5 + 0.5	73 86 82• 82	8	- 10 10* 12 10	27 31 27 27 27 30	42 52 44• 49 40	0. 46 1. 39 2. 46 0. 83 1. 00 0. 88	+ 1.90 - 0.72 - 0.08	0.18 0.72 1.26 0.42 0.36 0.40	3.0 T. 0.2 0 3.0 5.0	6 4 4 3 10 8	11 10 14 8 7	1 7 7 12 4	13 9 13 16 18	w. nw. ne. nw. se. nw.	S. P. Grane. H. H. McCumber. J. W. Hesser. J. P. Kidder. O. H. Opland. C. J. Hoof.
ew Englandew Rockfordew Salem	Eddy	1,531	16 2 5 5				8	11	31	44	1. 18		0. 63	4.5	11	9	15	7	nw.	J. L. McGovern. J. V. M. Sundberg. J. Christiansen. J. E. Goforth.
hafer eele ashburn 'illiston	McKenzie Kidder McLean.	1,857	3 16 8 32	44.6 42.8	- 0.1	78 81	8 9	15	27† 31	36 42	0. 94 0. 53	- 0.24	0. 40 0. 26	T.	3 9	18	8 7	8 14	w.	Lundin Bros. B. C. Smith. W. R. Peterson. U. S. Weather Bureau.
South Dakota.									168											
berdeen	BrownCharler MixHansonFall River	1,352	21 12 22 2	43. 4 46. 8	- 2.5 - 5.2	74 72	11 9†	15 21	28 28	35 34	2. 17 4. 11	+ 0.42 + 2.64	1. 25 2. 04	2.0 4.5	6 7	11	14	21 6	w. nw.	D. G. Gallett. I. T. Lothrop. Albert Hill. C. R. & O. R. R.
rmour ellourehe rookings amp Crook nton sseade Springs sstlewood enterville namberlain	Douglas. Butte. Brookings. Harding. Lincoln. Fall River. Hamlin. Turner. Brule.	1,521 3,000 1,636 3,000 1,248 3,422 1,685 1,229	15 3 22 19 16 3 5 14 14	43. 9 43. 2 45. 3 46. 9	- 2.0 - 2.4 - 4.3	83 69 83 72 82 69 72 74•		12 15 8 14 5 15 14 20	31 31 31 27 28 27 27 27 27 28 31	51 32 51 36 53 30 36 36	5.80 0.33 5.07 0.34 4.36 2.11 3.04 5.12 2.78	+ 3.34 + 1.57	4. 10 0. 25 1. 48 0. 23 1. 90 0. 65 0. 86 2. 06 1. 40	4.0 T. T. 3.0 6.0 T. 6.2 1.0	6 2 11 3 7 7 7 11 10 3	12 10 11 15 16 10 8	5 2 5 6 8 0 11	14 19 15 10 7 21 12	nw. nw. se. nw. nw. nw.	C. B. & Q. R. R. T. J. Markey. U. S. Reclamation Service Experiment Station. U. S. Forest Service, John H. Holsey. Fred Noerenberg. M. N. Bradley. Frank Williams. W. B. Van Horn.
ark ottonwoodster aviston	Stanley Custer Perkins	2,414 5,316	17 3 2	42.9 47.2	- 5.0	70 81	9	16 16	31	32 47	2.73 1.15 1.25	+ 1.14	1.08 0.40 0.46	1.0 4.0 5.8	13 6 5	9 13 17	7 12 9	15 6 5	nw. nw. w.	O. H. La Craft. Experiment Station. R. P. Imes. G. G. Davis.
eadwood eerfield e o Smet sowling umont ales 1son k Mountain	Pennington	6,000 1,726 2,250 6,195	2 18 2 2 2	46.0	- 3.6	83 70° 79 80°	8	19° 16	28 31 28	32° 37	3.80 1.71 2.83 0.75 2.65 0.72 0.24 2.06		0. 57 1. 25 0. 20 0. 43 0. 29 0. 17	14.0 8.0 T. 2.0 7.5 T.	7 9 6 8 9 8 3 4	16 16 14 18 12 10 14 13	5 7 6 3 10 7 9 8	10 8 11 10 9 14 8 10	nw. nw. se. nw. nw. se.	R. E. Grimshaw. Frank E. Miller. J. O. Purinton. M. P. Dowling. A. B. Wood. A. H. Peterson. J. C. Stoner. James E. Blaine.
lingson glewood ireka irfax ulkton andreau orestburg	Perkins Lawrence McPherson Gregory Faulk Moody Sanborn Brown	5,723 1,884 1,595 1,565 1,231	2 2 7 16 21 19 3	43.7 47.0 44.0	- 3.1 - 4.0 - 2.7	78 74 71 69 77 74*	8 8 8 11 9	13 19 15 19 16 10*	27† 28 30 28† 30 31	41 35 35 28 40 44	1. 20 0. 61 6. 06 1. 33 5. 51 3. 19	+ 0.18 + 3.81	0.30 0.13 3.34 0.92 2.10 1.11	11.5 T. 4.0 T. 1.1 T.	8 8 9 8 7 6 2	8 6 20 12 5 18 9	17 21 5 7 8 6 9	6 4 6 12 18 7 13	w. nw. nw. nw. n. nw.	A. C. Ellingson. T. J. Cummins. Experiment Station. U. G. Stevenson. Miss Belle Talcott. W. A. Harris, S. S. Judy. J. E. Jeffers.
reenmont	Lawrence	6,430 6,600	13 2 17 2	48. 8 46. 0	- 3.7	75 79	11 9	21 12	27 31	35 39	3. 47 5. 84 0. 38 3. 03	+ 4.06	1. 10 3. 75 0. 12 0. 90	17. 0 4. 0 0. 1 11. 0	10 6 6 7	14 13 15 20 19	9 11 7 1	8 7 9 10 7	nw. nw. s.	A. L. Hanson. H. C. Hoffbuhr. T. C. Williamson. Mrs. Laura Sinclair. Mrs. Ennie A. Gundlach.
arveys Ranch	Custer	3,278 1,890 1,564 1,306 1,530	1 5 15 1 19 9 29 14	44.8 44.0 46.1 43.1 43.6 45.0	- 4.7 - 4.7 + 0.3	82a 72 78 69 75 71	9 8† 8 11 8 11	8* 14 16h 16 13 19	27† 28 30	45a 36 33b 34 40 32	1. 31 1. 78 1. 05 0. 46 5. 36 1. 27 2. 36	- 0.03 + 3.56 + 1.02	0.50 0.50 0.46 0.24 2.28 0.76 0.99	18.0 4.5 T. T. 1.5 0.1 0.8	8 7 11 3 13 10 11	17 12 13 11 12 9	5 9 5 9 11 11 6	5 14 9 9 8 16	nw. nw. nw. nw.	Jerome Harvey. S. M. Booth. Experiment Station. E. R. Myers. J. J. Cox. M. A. Shuster, jr. U. S. Weather Bureau. J. B. Taylor.
adoka ennebecidder.	Stanley	1,689	18 7	45. 4		78ª	ïï	13b	27	38°	1.23	1 1 80	0.45	2.5	5	21	.0	10	nw.	Rev. D. S. Brown. R. C. Van Horn. H. C. Schussler.
imball Creek Delle ad. emmon	Brule. Bennett Spink. Lawrence Perkins Shaunon	2,345	14 2 2	43.6 41.8 44.4 45.0	- 3.0 - 4.7	70 81 65 78 82 84 71	8† 9 10† 9 8	20 8 15 5 17 11	30 26† 28 27 26† 27	35 50 29 31 42 46	2.78 2.99 2.58 1.15 2.12	+ 1.68 + 1.03	1. 10 1. 12 0. 60 0. 61	T. 12.0 0.9 9.1	8 10 8 9	19 20 12 13 18 16	8 3 5 8 9 5	8 14 10 4 10	nw. nw. nw.	G. D. Rose. Waiter E. Baker. E. L. Ebbert. E. F. Irwin. O. C. Olsen. W. A. Spencer.
arion	Turner, Sully Spink Hutchinson Grant Davison, Walworth	1,300 1,325 1,148 1,312	10 3 16 14 20 17	44.1 44.6 46.2 43.4 45.4 44.0	- 5.9 - 3.5 - 4.9 - 4.4 - 4.9	77 73 72 71 71 74	11 8 11 11† 11 8† 4† 9	20 15 18 19 16 19 15 0	28 27 26† 27 27† 27† 27† 27† 31 30 28 30	32 43 36 34 33 33 30 50	7. 73 0. 78 1. 47 5. 97 3. 70 4. 82 0. 34 1. 66	+ 5.70 - 0.14 + 4.05 + 2.00 + 2.89	2.60 0.38 0.87 2.10 1.27 2.98 0.24	0.5 T. 0.1 3.2 0 T.	11 9 13 10 10 5 2	9 12 12 13 14 12 11 21	14 11 4 5 3 12 8 4	8 15 13 14 7 12 6	nw. nw. se. nw. nw. se. nw.	M. H. Dains. John S. Walker. Frank A. Howe. J. H. Swanton. I. T. Patridge. C. W. Downey. Thomas J. Morris. L. C. Bode.
ardo Arichs	Lyman	2,300 3,339 1,600	19			78				50	1.06 0.45		0.60	0.8	10 5	19	8 10	4 9	nw. nw.	J. E. Strouse. H. P. Camp. U. S. Reclamation Service
man tumwa trkston erre. ankinton lloek	Butte. Stanley. Hutchinson. Hughes. Aurora. Campbell.	1.572	19 17 5 23 13	46.8	- 2.3	85 77 78 ^b	8 8	19 0 ^b 13 18	30 28 31 28	34	7.77	- 0.33 + 3.01	0.19 4.40 0.20 2.61 0.40	0.8 4.0 0.6 5.5	9 8 9	15 11 13 12 15	9 7 10 12	7 13 8 7	nw. nw. nw. nw.	J. W. Brets. W. C. Kempfer. U. S. Weather Bureau. W. G. Andrews. J. H. Jones. U. S. Weather Bureau.

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

		1	years	Tem	peratur	e, in o	degre	es Fab	renh	eit.	Prec	ipitation	, in fn	ches.	days,	1	Sky.	-	direc	
Stations.	Counties.	Elevation, feet.	Length of record, y	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy da	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observera.
South Dakota-Contd.																				Mana2-11-12 PM
Rosebud	Todddo	2,600	17		- 4.8	77:			30†			+ 2.05	0.46 0.86	9.0	9	10 15	8	10 8	nw. nw.	Mrs. M. E. Deffenbaugh, W. M. Ege. C. W. Soldier.
Roslyn	Walworth		3	41.7 43.6 47.0	- 2.7	70 73 75	11 7† 12	11 13 22	27 30 27	33 32	0.61		1.15 0.17 4.04	T. T. 2.0	5 9	9 11 10	10	13	nw.	O. O. Floren. Miss Gertrude Hall. J. H. Bechtold.
Sorum	Harding		21	43.7	- 3.7	92 81	9	10 17	281	57	0.60	+ 5.25	0.20	2.0	8 2	12 13	8 9 12	13	nw.	M. S. Eberhart. A. E. Johnson.
SpearfishStephan	Hyde	1.840	7	44.2		72	8	16	28 28 28†	38	1.83		0.85	0.5	5	7	8	16	nw.	Rev. A. Mattingly.
l'imber Lake	Bonhomme	1,418	14	46.3	- 4.9	76 72	9 31	16 12	28	39 32	0.57 7.14	+ 5.05	0.20 4.01	6.0	10	13 16	13	5	nw.	R. T. Halihan. F. F. Chaldek.
Vale Vermilion	Clay	2,765 1,222	10	45.70	- 3.9	82°	8	21	28 29 27	51° 32	4.69	+ 2.42	0.67	3.5 6.0	9	14 17	8	9	nw. se.	U. S. Reclamation Service Prof. E. C. Perisho.
Waters Ranch	Codington	4,000	17	42.6	- 3.1	70	11	15	31	33	0.99 4.24	+ 2.62	0.50 1.60	8.4 T.	7 9	13	5 5	13 16	nw.	George Waters. Robert Q. Wood.
Wentworth Wessington Springs	Lake		18	44.1	- 3.9 - 5.4	69 75	31	20 20	27 30	33 27 31	6.48	+ 4.84 + 1.15	3.27	T. 1.0	11 8	16	4	11	se. nw.	R. C. Zimmerman. Mrs. N. J. Dunham.
White LakeYankton	Aurora	1,646	37		- 3.3	73	3	21	28	28	4.33	+ 4.34	1.53 3.46	4.6	5	11 8	5 12	15 11	nw.	Mrs. G. A. Rogers. U. S. Weather Bureau.
Minnesota.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-,		-	0.0			-		~	0.01	1 2.02			1		-	**		Or D. Woulder Durous
Pipestone	Pipestone	1,710	11	42.2	- 6.4	72	11	15	30	34	6.38	+ 4.64	2.75	T.	9	11	8	12	nw.	W. S. Campbell.
Colorado.								1									13			A STATE OF STREET
Akron	Washington	4,650	9								1.60		0.63		5					Ira M. Barnhouse. Fred R. Dungan.
Arriba (near)	Lincoln	5,238	5		1	84	10†	5	21	48	1.52 1.02		0.52	10.5 8.0	5	18 14	6	7	8.	C. A. Creel. Mrs. Alice A. Auld.
Bennett (near)	Arapahoe																			J. F. Egelhoff.
Boulder	Kit Carson	4,160	15	48.0	- 5.0	83 85	14	17	21 21	47	1.55	+ 0.16	0.96	8.0	8 7	19	6 9	8 7	nw.	O. H. Wangelin. W. P. Davis.
Cassells	Park Douglas	8,445 6,220	19	44.5	- 2.9	84	14	10	28	55	1.99	- 0.67	1.07	3.8	8 3	18	6	13	e. n.	Harriet M. Cassell, Thos. W. Vaughan.
Theesman	Jefferson	6,890	17	45.7		77	13† 14		21	46	1.40	+ 0.31	0.50	10.0	6	16 22	14 5	1 4	n. se.	J. G. Thornburg. J. W. Adams.
heyenne Wells	Washington	11 000	14	44. 4	- 3.2 - 7.1	82	14	0	28 21 21 22 22 21	60	1.46	+ 0.35	0.60	3.0	5	15	5	11	S.	A. A. Williams.
Corona	Denver	5,272	39		- 4.0	50 80	2† 14	- 4	21	35 37	0.33	- 0.63	0.95	13.5	10 7	16	9	6	W. 8.	U. S. Weather Bureau. Do.
Edgewater Estes Park Fish Hatch-	Jefferson Larimer	5,450 8,000	3 2	45.8		80	9†	5	21	48	1.05 2.12		0.55	5.8 16.0	6	21 5	11	7 15	w.	Dr. N. P. Levin. G. H. Thomson.
ort Collins	do	4,985	29	45.3	- 2.9	80	14	15	21	49	0.93	- 0.06	0.53	4.0	7	17	6	8	nw.	Colorado Agri. College.
Fort Lupton	Morgon	4 210	13	46.0	- 4.0	90	14	12	29	60	1.16	+ 0.34	0.58	2.0	5	17	6	8	nw.	R. W. Benedict. Della M. Scott.
rances	Boulder	9,300	6	38.0		68	91	5 7	21 28	40	1.82		0.50	13.5 13.5	10	9	18	6	w. w.	C. W. Barry. Norman W. Fry.
leorgetown reeley	Clear Creek	8,550	9 20	47.5		83	14	13		49	1.26		0.32	14.5	8	11 22	13	7 6	ne.	H. L. Corbett. Nelson Reynolds.
			2 2								0.83		0.40	6.5	7	16 22	4 5	11		Emily Kleinknecht.
Iolyoke (near)	Phillips	3,745	15								2.48	+ 1.25	1.42		3				se.	B. E. Chesebro. A. C. Cauble.
I aw thorne I olyoke (near)daho Springs Keota	Weld	7,534 4,966	11	42.0	- 2.1	74.	2	44	217	51*	0.96 1.13	- 0.34	0.40	7.5 T.	5 5	21	3	7	w. nw.	J. J. Willis. I. S. Griffin.
aporte	LARTHIBET	0.4033	20 22																	P. A. Taft. Chas. Green.
ongmont	Boulder	4,980	10	36.0	- 4.3	82 64	13 9†	16	20 21	50	0.61	-0.80 + 0.84	0.35	15.0	11	20 20	6	6	ne. n.	Great Western Sugar Co. Enos A. Mills.
ongs Peak (near)	do	7,775	21	39.2			4+		21		1.30									A. M. McCahan. J. D. Stead.
Moraine			12	39.2	- 3.7	68	91	- 9	21	51	0.90	+ 0.13	0.42	8.0 4.5	5	19 13	11	10	w. n.	Denver Union Water Co.
St. CloudSedgwickSill Mine	Sedgwick	7,750 3,573	8	46.3		85	14	12	29	53	1.88 2.81		0.50 1.71	10.0 T.	5	14	14	3	nw.	Miss Guilla Sivers. Edwin Lewis, M. D.
picer (near)	Larimer	5,206	15	31.6		63	9	- 9	21	35	2.36		0.60	25. 2 1. 1	8 2	20	3	8	w. sw.	Edwin Lewis, M. D. Chas. F. Deininger. Frank W. Murphy.
sterling Waterdale	Logan	3,892 5,206	8	46.2		82	14	13	29	49	2.15		1.70	2.1	7	12	8	11	se.	Great Western Sugar Co. P. H. Boothroyd.
Vray	Y uma	3,512	15 20	46.8	- 4.7	89	5	16	29	53	2.10	+ 1.17	1.32	0	3	15	6	10	nw.	J. C. Tuomey.
Nebraska.	gd0	4,138	20								1.69	+ 0.72	1.14		3	14	9	8	nw.	Matthew Harr.
insworth			6	44.8		72 72	81	15	28	38	6.78	. 1 0	2.95	9.4	12	5	21	5	nw.	John M. Cotton. F. M. Weitzel.
Albion	Boxbutte	3,968	13 16	47.2	- 4.9 - 5.0 - 3.4	72 80 85	3 14	16 1 23	28 28 27 21	35e 54	3.27 2.10	+ 1.04 + 1.23	1.73	6.0	6	11 18	7 8	13	n. n.	J. A. Keegan.
lmareadia	Valley	1,939 2,186	16	50.8	- 3.4	85	5	23	21	41	1.28	- 0.54	0.55	3.0	6	15	8	8	nw.	W. A. Sharpnack. J. L. Owen.
rdenshland	Boone	1.100	1 29	51.4	- 3.5	79	4	23	28	38	3.77	- 1.16	3.00	т.	6	9	14 7	8	nw. n.	A. E. Johns. Dr. A. S. von Mansfelde.
shtontkinson	Sherman	2,061	18	45. 2							4.05	+ 2.18	3.41		6	12	5	14	n.	F. Rein.
uburn	Nemaha	1,051	19	52.8	- 2.9	78 79 75 77	12	27	27† 31	36	6.79	+ 3.87	2.85 5.13	2.0	11	16	6 2 1	13	nw.	C. J. Wilson. J. R. Huffman.
leatrice	Gage	1,235	18 21 21	52.1 51.9	- 1.5 - 2.9 - 3.8	75	1† 5†	12 27 20 27 24 26	31 31 31 31 31	34 29 38 35	2.50	+ 3.87 + 0.18 + 0.45 + 0.56 + 0.04 + 1.51	0.85	3.5	9	17 16	1	13 14	nw.	C. B. & Q. R. R. Co. W. S. Waxham.
Beaver CityBellevue	Sarpy	1,210	30		- 3.8	84 75	5	24 26	31	38	1.88 2.10	+ 0.56	0.67	T. T.	7	11 15	10	10 11	se. nw.	T. M. Davis.
enkelman	Dundy	2,968	13								2.37	+ 1.51	1.55	T.	2	7	18	6	se. ne.	A. A. Tyler. R. D. Druliner. W. F. Dobbin.
lair	Phelps Washington	1,122	16	50.1	- 3.3	78 73	4	19 15	28 27	38	1.58	- 0.62	0.80	T.	10	18 11	3	10	nw.	D. C. Van Deusen.
radshaw	Knox York	1,715	14	49.1			11			31	5.63	- 0.14	2.10 0.94	4.0	8	15	12 8 9	8	nw.	Dr. L. C. Bleick. E. C. Roggy. R. H. Willis.
ridgeport	Morrill	2,477	15	45. 4 45. 2	- 3.4 - 4.7	83 78	14 13	11 15	29 31	53 42	1.68 4.66	+ 0.83 + 2.74	1.50 3.53	T. T.	6	18 19	9	11	nw.	R. H. Willis. C., B. & Q. R. R. Co. Henry Middendorf.
runing	Thayer	1,583									0.93					15				

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

			увап	Tem	peratur	e, in	degre	es Fal	hrenb	ett.	Prec	ipitation	, in in	ches.	days,		Sky.	1.	direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest dally range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or m	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	7	Observers.
Nebraska-Continued.				(Jal																1000000
Butte	Boyd	1.951	3	46.8		76	8	19	28	36	6.36		3.66 1.90	2.0	7	10	16		nw.	W. Whitla. Elliott Harrison.
Callaway	Custer	2,555 2,258	5	50.1		86 79	5	23	21	41	3.06		1.45	0	4	14	2	15	ne.	J. H. Evans. Chas. Jensen.
Canton (near)	Sioux	1,442	19	38.4° 49.0	- 3.4	79 75	10	- 5 21	21 27 28	52°	1.69 3.87	+ 1.80	0.43	4.0	8	16	0	15	nw.	A. E. Hann. A. L. Rush.
CozadCreighton	Dawson	2,496	14								2.44 5.50	+ 3.92	1.82	T. 0.3	7	16	6	9	50.	A. A. Luttin. C. L. Cherry.
CreteCulbertson	Saline	2,565	28 24 14	50.6	- 3.3	76	. 5	25	31	33	2.70 1.98	+ 0.53 + 0.85 + 1.70	0.90	0.2	8	12 24	0	15	n. nw.	Doane College. J. H. Corrick.
Curtis	Frontier	2,553	14 22	48.4	-3.6 -1.2	76 72	9	21 24	31 28†	42 32	3.10	+ 1.70 + 0.07	1.80	T.	8	7	16	8	nw.	Dr. S. R. Razee. S. Clingman.
Dawson	Richardson	945	7								10. 26		8.01		12	13	3	15	nw.	Mrs. E. I. Atkinson, O. M. Backus.
Dumas	Garfield		6			72	2	16	27	43	5.09		2.06 4.12	T. T.	6	17	1	13	n.	J. M. Kenney. D. J. Wood.
Elmereek	Buffalo	2,268	4								3.51		1.72	0	3 5					E. L. Sutton. J. F. Brittain.
Elsie Ericson	Wheeler	. 2,029	19								4.39	+ 2.57	2.02	0.5	6				8.	J. A. Bodyfield. G. H. Benson.
Ewing Fairbury	Jefferson	1.316	21 36	46.4 51.8	- 3.1	76 80	17	25 22	31 31	43	1.28	+ 3.04	3.10 0.44	3.5 T.	8	9	14	8	nw.	W. F. Cramb.
Fairmont	Fillmore	3,764	18 29	48.6 39.8	- 4.1	76 79	9	-1	31 27 31	41 49	1.16 2.64	- 1.46 + 1.32	0.25 1.08	4.0	11	13 24 14	0	16	n. nw.	C., B. & Q. R. R. Co. Post Surgeon.
Franklin	Franklin	1,820	29 22 30	51.0 50.5	- 3.1 - 4.1 - 8.3 - 2.1 - 2.1	86 78	15	20 20 20 24 21	31 28	46 39	1.11	- 0.61 - 0.33	0.57	1.0 T.	6	15	7 8	10 8	n. nw.	A. R. Peck. Ernest Hahn.
Fullerton	Nance		10 22	49.2		(D	31	20 24	28 28 31	37	4.67	+ 2.28 - 1.37	2.35	T. 2.0	6 5	15 11	10	8	nw.	Dr. F. W. Johnson. F. M. Flory.
Jenoa		1,584	36	49.8	- 2.3 - 1.2	78 75 83	13	21 2	28 29	35 573	3.96 1.97	+ 2.14	3.20 0.75	0.5	10	13	10	8	nw.	F. W. Parsons. G. F. Williams.
losper	Gosper		10 18						31	42	2.74 3.10	+ 1.11 + 1.49	2.08 1.32	0	7 7	11	10	10 11	nw.	E. H. Stoll. Dr. W. J. Bartholomew.
Fothenburg	Hall	1,860	20	49.9	- 4.1 - 2.8	77	10	20 23 15	21	34	3.75	+ 1.16	1.76	T.	7	10 14	4 9	17	n. nw.	E. A. Barnes. Cyrus Carver.
Frant	Greelev	2,021	17	46.6			14	16	29 31	49 33	3. 26 3. 65	+ 1.82	2.10 3.02	1.0	7	11	13	7	nw.	W. E. Morgan.
Guiderock	Webster	1.646	12	46.4		76	12	18	28† 27	42	1.00	- 0.86	0.30 2.20	1.0	6 7	10	11	12	ne.	J. S. Marsh. U. S. Forest Service.
Hartington	Cedar	1,309	18	48.4	- 2.7	76	11	20	27	33	5.18	+ 3.35	1.94	2.0	7	6	16	9	nw.	D. E. Ewing. Bert Gregg.
Tastings	Adams	1,932	22	49.0	- 3.9	80	5	26	21†	39	1.48	- 0.66	0.50	1.0	7	10	15	6	nw.	C., B. & Q. R. R. Co. C. A. Ready.
Hayes Center	Sheridan	3,821	26 26	42.8 51.0	- 4.4 - 3.1	80 82	91	3 25	29 31	50 35	1.66	+ 0.40	.0.67 1.22	8.0 T.	10	18	5	8	nw.	A. Kadlecek. Dr. C. M. Easton.
HebronHemingford	Boxbutte	1,458	3	31.0	- 3.1	0.2	5				1.98		0.56		8			•		A. S. Enyeart.
Hendley	Lincoln	2,902	1								1.86		1.68	0	5 7	17	1 3	13		G. F. Palmer.
Tillside Toldrege		2,324	22	51.8	- 1.1	79 87	11	23	30 22 31	551	4.04 2.27	+ 0.50	2.90 0.82	1.0	6	20 22	2	8 7	nw.	C., B. & Q. R. R. Co.
Tooper	Dodge	1,228	14	49.5	- 2.4	75	3†	19		45	2.33 1.95	- 0.01	0.95	6.0	6	12 16	3	19 12	nw.	G. F. Palmer. Mrs. M. R. Lloyd. C., B. & Q. R. R. Co. Dr. W. H. Heine. Mrs. W. P. Miller. Robt. Malcolm.
mperial	Chase	3, 278	22 23	51.1	- 0.6 - 3.3	80	10† 5	18 25 14 13	30 20 28 28	46.	2.92 2.31	+ 1.81 + 0.45	1.95	T.	3	11	3	17	56. 56.	Robt. Malcolm. City Engineer.
Kimball	Kimball	4,697	24 16	44.0	- 4.1 - 3.3	83 84 76	14 8t	14	28	50 40°	0.91 6.95	+ 0.29	0.62 4.66	T.	6	21	7	10	nw.	F. J. Bellows. Mrs. C. Arter.
Kowanda	Deuel		3	*****	- 0.0						2.07		1.38		5	15		12	nw.	Mrs. C. Arter. Geo. W. Hulse. R. L. McGaughey.
Lexington	Dawson	2,385	23	48.6	- 3.6	77	10	15 20 27	31 31	40	2.86	+ 1.37	1.11	0	5 9	18	0 7	13 13	50. 50.	Robt, Chadwick.
Lincoln		1,189 3,820 2,067	31 12		- 1.5	. 86	14	12	30	32 51•	1.63 2.01	- 0.19 + 1.46	0.92 1.23	T.	5	19	5	7	nw.	U. S. Weather Bureau. R. T. Kidney.
Loup City	Sherman		. 3	47.1	- 4.0	72	3†	18	21	40	4.00	+ 1.63	3.40	1.0 T.	8	20 18	6	5	80. 8.	Harriet Hayhurst. C. H. Cass.
McCook	Redwillow	2,506	17	49.7	- 4.2	82	10	20	30†	49	0.96	- 0.09 - 0.08 + 0.92	0.49	0.5	6	20	2	9	n.	C. G. Coglizer. L. L. Slagle.
Madison	Madison	1,585	119	47.8	- 3.1	71	11†	18	28	30	2.89	+ 0.92	1.24	T. 2.5	6	14	5	12	nw.	Dr. F. A. Long. John Ellis.
Marquette	Brown		1 12								6.55		3.50	5.0	9	14	8	9	nw.	G. C. Stufft. J. A. Amsberry.
Mason City	Scotts Bluff	3,825	2						21		1.67		0.64	1.0	5 7	21 10	12	10	se. n.	A. Kennedy. Joel Hull.
Minden	Kearney Scotts Bluff	2,169 3,950	34	48.3	- 3.9		10†	20 10	21 27	39 47	1.64	- 0.46	0.52	1.8	6	22	4	5	0.	U. S. Reclamation Service C. R. Polen.
Mitchell	CherryOtoe	3,199	32	50.8	- 28	80	3†	25	21	330	6. 61 0. 50	- 2.24	3.00	2.5 T.	6 3	18	1 4	12 8	80. 8.	C., B. & Q. R. R. Co. Mack I. Koser.
Nelson Norfolk	Nuckolls Madison	1,683	27	48.2	- 24	75	3†	18	28†	35	1.18	+ 1.11	0.32 1.20	0.5	8	12 20	8	11 8 7	n. nw.	Dr. P. H. Salter.
North Loup	Vallev	1.961	23 38 24	51.0	- 24 - 0.6 - 4.0 - 4.4 - 24	85 77	17	19 20 15 29	31	35 56 40	4.10	+ 1.11 + 2.37 + 2.51 + 2.21 - 1.09 + 2.42	2.22 2.62	T.	8	12	12 12	10	n. n.	W. G. Rood. U. S. Weather Bureau.
North Platte	Antelope	1,722	24	45.1	- 44	71 76	3	15	28	34	3.88	+ 2.21	2.90	1.0 T.	9 7 6	11	10 12	10 11	nw. n.	G. S. Clingman. U. S. Weather Bureau.
Ord		2,062	17	01.8	- 24	10					4.46	+ 2.42	1.87	2.0	6 5	8	8	12	n.	Jas. Milford. Jas. McGeachin.
Orleans	Polk	1,644	4										0.63							. G. T. Ray.
Palisade Palmyra**	Otoe		17	51.2	- 22		12	30 22	27† 22		2.65	- 0.85 - 0.60	0.31	1.0	8	17	6	8	n.	Thos. Coles.
Pawnee City	Pawnee Keith	1,175		52.4		77	3			42	1.87 2.83	- 0.60	1. 12 2. 20	T.	6 7	18	16	117	nw.	F. A. Barton. H. D. Lute.
Plymouth	Jefferson	1,419	7	51.1	- 5.0	78 75	5 10†	25 17	31	35 41	1.51	+ 4.10	0.96 4.00	3.5	5 8	14	1	13	nw.	John Ruppel. T. C. Jackson.
Purdum Ravenna	Buffalo	2,028	34 20	49.0	- 5.0 - 3.1 - 1.8	77	5	19 20	31 21	40	3.47	+ 4.19	2.00	1.0	7 7	14	8	9	se. nw.	H. G. Smith. Chas. S. Ludlow.
Redcloud St. Libory	Howard	1.887	17								3. 51	- 0.94 + 1.25 + 1.83	2. 23	2.0	7	14	12		nw.	W. I. Meader. Paul Anderson.
St. Paul	do	1,796	17	49.8 51.2	- 3.4 - 1.3	75 78 75	17	23 19 21 17	31 28 29 28 27 31	38 44 40 38 52	3. 89 8. 11	+ 0.00	2.40	4.0		16 12	n	8 8	86.	Nat H. Neff.
Sargent	Custer	2,339	16 18	48.0		75	10† 3 14	21	201	38	4.04	+ 2.73	1.87 1.25	T.	. 4	12	7	12	n.	J. L. Ferguson. J. T. Sumner.
Scottsbluff	Scotts Bluff	3,888	18 5	46.0		75 84 72	14	15	271	52 48	1.96 2.20	- 0.10	0.55	1. 6 T.	7 8	12 22 12 26	14	5 5 3	nw.	A. B. McCoskey. C., B. & Q. R. R. Co.
Seward	Seward Cheyenne	1,485	19	19.2	- 5.2	1.0	01	19	91	-0	2.06	+ 1.15	0.87	2.0	8 5	26	2	3	80.	C., B. & Q. R. R. Co. John P. Fischer.

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

		+	years	Temp	perature	, in c	legree	s Fah	renh	eit.	Pree	pitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Моап.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	20	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	-	Observers,
Nebraska—Continued.				-																
ringviewanton	Keyapaha Stanton	1,472	19 20		- 4.9 - 4.2	72 75	101	16 14	28 28	33 41	2.63	+ 4.45 + 0.91	3.35 1.25	5.0	7 7	12 16	11 9	8	nw. sw.	C. L. Phelps. Alfred Pont.
rattofi	Nuckolls	2,804	16 28								2.16 1.75	+ 0.90	1.07	0	3					Miss Stella Vennum. F. V. Bishop.
racuselblerock	Otoe	1,059	19 22	52.0	- 2.6	76	3	24	31	37	1.23	- 0.97	0.47	T. T.	9	14	8	13	nw.	W. N. Hunter. E. D. Howe.
ecumseh	Johnson	. 1,113	34	50. 2	- 3.1	77	15	20	28	37	5.60	+ 2.66 + 2.96 + 1.40	4.03	T. 0.5	9	12	8	11 8		L. E. Pratt.
obias	Saline	1,597												0.0					nw.	Marguerite Nesbit. Frank Ainsworth.
niversity Farm	Cherry	. 2,613	27 23	52. 2 44. 6	-2.7 -3.9	76	3 9	. 27 17	31 28	36 38		-0.02 + 3.48	0.65 2.10	3.9	9	11	10	10 5	nw.	S. W. Perin. U. S. Weather Bureau.
ahooakefield	Dixon	. 1,387	18	47.8	- 3.9	75	11	15	28	38	1.08 2.63	+ 0.49	0:48	0	8	18 12	10	3	nw.	W. T. Mauck. I. H. Weaver.
althillatertown	Thurston		8	49. 2*		75	11	12	31	371	3. 25 5. 22		1.28 3.50	0.1	5	8	19	4	nw.	A. P. Coleman R. E. Swift.
aunetaeeping Water	Chase		13 33	51.6		79		04	28†	40	3.30	+ 2.11	1.25	0	3					C. D. Fuller.
estpoint	Cuming	1,313	24		- 2.6	76	3	24 20	28	40 36	2.00	- 0.24 + 0.62 + 0.20	0.67	T. T.	9	18	5	11 8	nw.	S. W. Orton. J. C. Elliott.
isnerork		1,380	15 24	51.2	- 2.7	77	10	23	31	39	2.69 2.42	+0.20 + 0.28	1.25 0.82	T. 3.0	7	12	9	10	nw.	F. C. Evans. A. T. Giauque.
Iowa.																			- 1	
fton	Union	1,212	17	50.4	- 2.9	79	2	27	31	32	2.65	+ 0.03	1. 20	0.2	8				nw.	N. W. Rowell.
llertonlton	Wayne		9	51. 1 45. 5		83 70	3 3†	28 18	22	29 28 33	3.63		2.00 1.52	1.5	8	13 12	8	10	nw.	Mrs. Geo. Shriver.
tlantic	Cass	1,164	20	49.6	- 2.0	76	15	20 22	28	33	1.85	- 0.67	0.85	4.0 T.	10	11	7	13	nw.	W. S. Slagle. Thos. H. Whitney.
udubonedford	Taylor		17	49. 2 50. 2	- 1.7 - 4.1	75 78	15	22 23 27	22 28 28 28 28 22 21	29 36	2. 47 3. 41	+ 0.31 + 1.13	0.92	T. T.	10	9	7 4 5	18 12	nw. ne.	Geo. E. Kellogg. E. E. Healy.
enterville hariton	Appanoose	1.042	16	51. 2 50. 4	- 3.8	84 80	3	27 26	21 22+	33	3.30 2.54	+ 0.18	2.10	2.0 T.	8	17	10	14	w. n.	Gordon Peacock, jr. C. C. Burr.
arinda	Page	1,009	21	50.9 49.2	- 4.1	79	3+	26 23	28+	42 38	3.89		2.76	0.2	10	7 13	11	13	nw.	A. S. Van Sandt.
orydon	Wayne	1, 101	18			82	3				3.89	-0.18 + 1.40	1.17 2.00	T.	8	10	8	11 13	se. nw.	Jerome Smith. J. J. C. Bowen.
ouncil Bluffs	Union	1,312	6	49.9		77	15	22 24	28†	37	1.84		0.56	T.	8	10 13	10	11	nw.	B. W. Crossley. O. J. Colby.
umberlandenison		1,180	12	49.1	- 1.7	78	30	19	28	32	0.77	- 1.54 - 0.06	0.38	0	6 9	17 19	5 2	10	8.	J. H. Reppert. W. C. Van Ness.
lliottreenfield	Montgomery		6 19	50.0 49.2	- 3.9	77 76	15	22 23 18	29 31	31	2.68 2.65	+ 0.38	1.15	T. T.	8	13	10 12	8	nw.	Henry Barnes. R. B. Oldham.
arlan	Shelby	1,182	12	48.8	- 4.0	76	31	18	28 27 22	30 32	1.77	- 0.99	0.60	0.1	9	12	7	12	nw.	C. A. Reynolds. F. B. Hanson.
amoni	Decatur		4	50.9	******	80	3	15 27	22	30	4. 39 5. 37		1.80 2.68	3.0	11 12	13 14	8	10 17	nw.	T. J. Fitzpatrick.
e Mars		1,266	21 15	46.0	- 5.3	69	3	21	27	25	3. 37	+ 1.48	1. 43	T.	7	8	13	10	ne.	R. H. Gray. G. A. C. Clarke.
enoxeon	77		16	49.8	- 3.8	76	15 15	26 27	31	29	2. 56 5. 70	+ 0.03	1. 25	T.	8	18	6	11	nw.	J. L. Hurley. Morris Gardner.
ittle Slouxogan	Harrison	020	6	50. 0 48. 9		77 76	15	17	31 28 28†	25 29 29 38 33 27 31	2.86		1.12	1. 2 T.	7	19	3	9 8	nw.	Geo. H. Gibson.
lount Ayr	Ringgold	1,236	18	50.1	- 3.3 - 4.8	77	3†	20 27 27	31	27	2.35	+ 0.65 + 0.09	1. 10	T.	8	9	11	11	nw.	Glenn H. Stern. A. F. Beard. J. M. Darby.
orthboro	Page		20	50. 5 52. 9	- 3.7	79 80 72	3 3 3 3	29	31 22 31	30	3. 06 0. 73	+ 0.82	1.30 0.20	T.	12	5	15	11	nw.	M. T. Ashlev.
debolt	Monona	1.051	14	48. 6 51. 0	- 4.3 - 3.8	80	3	29 29 21 22 20 17	28† 28 23† 28 26†	39 34 34	1.78	- 0. 27 - 0. 05	0.60	0.5	8	15 21	7 3	9 7	nw.	E. Starner. C. G. Perkins.
acific Junetion	Mills	1 358	12	49.5	- 4.9 - 1.8	76	3 11	22	23	38 31	1. 25	- 1.05 + 2.57	-0.60 1.80	T. 2.5	9	10	16	5	n.	H. H. McCartney. W. C. Wyckoff.
heldon	O'Brien	1,422	11	46.0	- 5.4	74	13	17	26†	31	5. 28	+ 2.69	2.10	1.5	10	14	8	9	.8.	Dr. A. W. Beach.
lbieyioux Center	Sioux		12	44.8	- 6.2	71 68	11 3†	18 21	31 28	28	4.50	+ 3.09 + 2.32	2. 47 1. 20	1. 2 6. 0	13	10	8	13	nw.	H. G. Doolittle. J. de Ruyter.
pencer	Clay		22	48.0	- 3.1	73	3 13 15	23 18 24	28 28 31	29 29 34	2. 21	+ 1.43	2. 14 1. 70	1.6	11 5	13	9	9	nw.	U. S. Weather Bureau S. Gillespie.
hurmanVashta	Fremont	1,157	14	50.7 46.7	- 4.1 - 2.3	73 71 75 78	15	24 14	31	34	2.60	- 0.57 + 0.21	1.38 1.82	T. 1.0	10 5	9 15	11	11 9	nw. n.	S. Gillespie. C. R. Paul. H. L. Felter.
Voodburn	Clarke		12	51.0		81	3†	21	28 21	38 41	3. 15	+ 1.13	1.09	T.	10	12	3	16	nw.	C. B. McDonough.
Kansas.				-																
bilenegricultural College	Dickinson	1,157	16 58	54.4	- 1.9	85		96	31	49	1.46 1.55	- 0.78	0.60 0.35	T.	4 9	7	9	15	ne.	T. W. Sherman. Prof. J. O. Hamilton.
lton. tchison	Osborne	1,651	9 20	52.8		88	5	26 24	21	44	0.27	- 0.76 - 1.43	0.12	T.	4	16	6	13	n. nw.	H. A. Storer.
eloit	Mitchell	1,383	16	55.2 52.6	- 1.8	88 84 86	5† 5 5† 5† 5†	31 25 16	21 22† 23† 31	42 44 34 45 50	1.34	- 0.47 - 0.66	1.32	T.	6	11 12 17	11 9	10	nw. ne.	Prof. M. F. Troxell. F. A. Slack.
lakemanlne Rapids	Marshall	1, 105	14	48.3		81	5	16	31	50	1.51	+ 0.26	0.71	0	6	17	9 2 7	12 13	nw. se.	C. L. Henderson.
entralia	Nemaha	1,256	5 2 7	51.7 54.7	******	80 85	5 5‡	28	23	38	2.64		0.90 2.65	T.	6	17 16	1 5	13	nw.	M. Norton. N. S. Hazen.
ay Center	Clay	1,203	10	53.9	******	85	5	26	31	43	1.00		0.32	0	4	9	4	18	sw. ne.	Dr. R. McShea. O. L. Slade.
olbyoncordia	Cloud	1.398	20 27	53.0	- 3.9 - 2.4	85 85 86	5	28	23 31 31 31 31 20† 31	38 49 43 45 34	0.35	+ 0.08	0.53	T.	11 5	15	7 15	9	ne. nw.	G. H. Kinkle. U. S. Weather Bureau
ensmore	Decatur	2.731	17	51.6 50.8	- 4.0	86 85	5 5 11 12	25 25	20† 31	40	0.91	+ 0.03	0.24	T.	7	9 16	11 2	11 13	ne. se.	J. J. Griffith. Jacob Bock.
llsworthnterprise	Elisworth	1.537	7 9	53.4		90 88	11	24	31	47	1.33	- 0.15	0.48	T.	8	15 17	13	3 10	8.	Geo. Seitz. J. R. Clark.
skridgearnsworth	Wabaunsee	1,412	5	55.0		84	5	28 26 20 28 25 25 24 30 32 21 33 25 31 22 17 26 24 23	31 23 27† 20† 22 30 25 21 31 31 31 20†	40 40 47 42 35 56 33 41 35 44	1.13		0.42	2.0	7	18	5	8	S. S.	Geo. D. West.
ort Scott	Bourbon	857	10 36	52.4 58.4	- 3.5 - 0.6	92 91	5 14 13	33	20†	33	1.09 5.03	- 0.10 + 2.44 - 0.65	0.40	T. T.	6 11	154 17	60		s. ne.	C. M. Jennison. E. A. Shaver.
rankfortarnett	Anderson	1,146	17	50.0 57.2	- 7.6	80 89	51	25	30	35	1.89	- 0.65	0.87	T.	5 8	10	12 15	9	SW.	E. C. Dunham. D. D. Judy.
oodland	Sherman	3, 687	4	49.6 51.0	- 3.2	89 88	14	22	21	44	0.90		0.45	T.	6	10 21 15 12	4 6	6	n.	C. C. Calvert.
anover	Washington	. 1, 225	22 14	53.2	- 3.2	81	5	26	31	50 37 41 49 40 35	0.75 6.34	- 0.51 + 3.64	0.40 3.88	T.	6	12	8	10 11	nw. n.	Jesse Royer. A. Jaedicke, jr.
arrison	Ellis	. 2,000	10 43	52.2 53.4	- 2.7 - 2.8	84 93	5 5 14	24	31 20±	41	1.62	- 0.08 - 1.26	1.10	T.	8	20 13 18 19	10	10	n. ne.	Mahlon Tegley. G. K. Helder.
ill City	Graham Brown	2, 134	3 22	50.4		87	5	24	19†	40	0.58		0.27	T.	6	18	3	10	n.	I. R. Mort.

TABLE 1.—Climatological data for October, 1911. District No. 6—Continued.

			Years	Tem	peratur	e, in o	degre	es Fal	hrenhe	eit.	Prec	ipitation	, in in	ches.	days,		Sky,		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest damy	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Kansas-Continued.								100						CB.						The Billians of
oxie	Sheridan	2,700 1,540	13	51.4	- 27	85	5	23	31	42	0.99	- 0.47	0.30	T.	4	12	8	11	n.	I. L. Vinson.
well	Jewell. Douglas. Leavenworth	1,540	43	54.7	- 0.8	84	i	32	224	33	0.31 1.63	- 1.25	0.23	0	10	15 13 14	8 5 8 6 3 8	11 10	nw.	Prof. H. P. Cady.
wrence	Leavenworth	913	43 67 13	56.0	0	82 82 90	1 3 11	32 34 21 23	22† 22† 31 23†	33 30 42 49	3.36	+ 0.94	1.51	0	7 0	14 21	6	11	n.	Dr. A. F. Yohe. E. V. Bower.
banonoti	Wiehita	1,812 3,300	8	52.0 50.8	- 3.8	90	14	23	231	49		- 1.45	T. 0.42	T. 2.0	4	18	8	7 5	s. n.	Fred Burnham.
ndsborg	McPherson	1,333	8 5 2						Jana la				1.33	1.5	4	20*	10	ga.		W. F. Isaac.
nkatonneapolis	Ottawa	1,784 1,259		53. 2 54. 7	- 2.1	85 87	5	27 28 30	31 31 22	34 38 40		- 1.72	0.40	T.	7	16	1ª 4 14	11	8. n.	J. L. Steele.
ran	AHBU	1,000	21 15	58.3	- 1.9	89	1	30	22	40	2.13	- 0.23	0.67	T.	9	9	14	8	SW.	C. J. Norton. C. O. Hunt.
toma	Norton	2.284	13	51.0	- 3.7	85	6	24	21	40	1.06	- 0.62	0.02	T. T. T.	1 5	25 12	3 10	9	ne.	Sim Sleffel.
erlin	Decatur	2, 284 2, 539 1, 194	24	89 1		90						+ 0.12	0.71	T.	6 10	16	7 13	8 12	ne. nw.	I. K. Huber. J. A. Church.
eto	Johnson.	1.032	3 16 12	52.1 55.3	- 2.5	80 86	5	30	31 22	35	1.90	- 0.75	5.62	T.	6	6 8	8	15	30.	Dr. S. B. S. Wilson.
age City	Osage	1,081 926	12 17	54.8		89 89 88	1 5	28 30 34 28 26	22 22 22 22 21†	36 35 41 38 48	1.01	- 1.19 - 2.02	0.40 0.62	0.2 T.	6	11b 11	8 59 9 8 7	13b 11	n. s.	Dr. S. B. S. Wilson. W. C. White. H. F. McDougal.
tawa illipsburg	Phillips	1,939	20	52.5	-1.3 -3.3	88	5	26	21†	48	1.12	- 0.62	0.36	T.	8	14	8	9	ne.	N. E. Bailey.
ainville	ROOKS	2, 100	5 9			86				31	0.35		0.20	T.	11	23 13	7 10	8	n. ne.	N. E. Bailey. P. D. Spellman. B. F. Blaker.
easanton	Republic	1,495	8	52.9		85	5	30 23 25 15 20 27	22 31	45 46	1.22		0.90	0	7 2	17				J. W. Ambrose.
issell	Russell	1.834	12	53.8	- 1.5	86	61	25	20† 31	46 50		- 1.72	0.08	T. 1.5	3	17	7 5 3	7 9	s. n.	Robert Brebner.
ssell Springs	Cheyenne	3,288	3	48.4		87 88 89	14 14 5 14	20	31	50	1.78		0.90	T.	6	16	3	12	nw.	D. J. Hutto. J. E. Uplinger. Prof. A. W. Jones.
ina tt	Saline	1, 221	27 5	55.4 53.0	- 3.6	91	14	27	23†	43 50		- 1.11	0.43	1. 4.2	6 5	7 15 19	16	10	s. n.	
ith Center	Smith	1,800	1	*							T.		T.	0	0	19	6 5	7	ne.	W. H. Nelson. U. S. Weather Bureau Miss Nettie Maxwell.
pekalley Falls	Shawnee	997	25 12	55.0	- 1.3 - 1.7	84 83	5 5†	34 28	31 22	30 35	0.81	-1.10 -1.18	0.41	T.	7 6	10	10	11	n. s.	Miss Nettie Maxwell.
nland	Douglas	880	2								1.52		0.50	T.	8					A. Schick.
akeeney	Trego	2,456 3,303	28	50.9		90	14	18	20	49	0.62	- 0.32	0.49	1.0	3	10	14	7	ne.	A. S. Peacock. M. T. Griggs.
amego		1,002	41 18							20		- 1.01	0.35	T.	6	9	12	10	n.	M. L. Stone.
Missouri.																				
moret	Bates	850	3	56.9		89	1†	33	27	35	4.17		1.33	T.	8	9	10	12	ne.	Darby Fruit Farm.
moretppleton City	St. Clair Vernon	853 767	22 20	58.2 58.8	- 0.9	88	1	31	22	42	2.34	+ 0.09	0.65	0	9	9	12 11	10	ne.	T. C. Brown. J. T. Armstrong.
alon	Livingston		27	54.2	- 3.8	85	3	30	23	34	5.54	+ 2.12	4.17	0	5	12	10	9	sw.	F. G. Ashbaugh.
thany	Harrison	1,070	21	54. 4 59. 2	- 0.9 + 2.3 - 3.8 + 0.6 + 0.9	88 89 85 81 89	5 3	33 31 29 30 28 31	27 22 22 23 26 22	35 42 38 34 24 32	1.48	-0.95 $+2.35$	1.03 2.30	T.	7	10 11	9	12	sw.	W. H. Skinner. A. C. Fink.
onvilleunswick	Cooper	600	27 21 24 35 33 25 22 27								3.50	+ 0.09 + 3.45 + 2.12 - 0.95 + 2.35 + 0.73 + 0.04 + 0.76 + 1.45 + 2.34	0.98	0	14	10	2 5	19	8W.	C. Randecker.
unswick	Chariton	652	33	55.4 57.9	- 1.1	84 90	3 3 3	32	221	34 36 30	2.90	+ 0.04	1.90	T.	8	9	10	17	ne. nw.	Louis Benecke. A. E. Derwent, M. D.
ntonlumbia	Boone	784	22	55.3	+ 0.5	88 78	3	30	22	30	3.87	+ 1.45	2.70	0.2	13	6	11	14	8.	U. S. Weather Bureau
nception	Nodaway	982 1,124	27	52.0	- 3.5	78 91	30	31	23	29 39	4.78 3.80	+ 2.34	2.82 1.23	0.2	8 7	14	16	11	nw. e.	Fr. Adhelm Hess. Ira H. Stephens.
ockerdorađo Springs yette	Cedar	750	7	58.1		88 86	3	32 30 30 31 29 29 31 28	22	42	5, 16		2.10	0	9	12	5 7 3	12	n.	Samuel Graham. Prof. T. Berry Smith.
yette	Howard	725 818	29	54.8	-2.2 + 0.1	86	3	31	27 22†	28 39	4.27	+ 1.94 + 0.88	2.31 2.37	T.	8	111	3 5a	17	******	Russel Johnston.
ltonasgow	Howard	618	34		T 0.1		10000				5.48	+ 3.01	2.48	0	10	13	6	12	n.	J. J. Shaughnessy.
ant City	Worth	1,130	29 21 34 20 40	52.3 54.6	- 1.3	78 87	3†	29 29	22† 22	32 36	6.45	+ 3.91 + 1.12	3.90	* 2.5 T.	7	10 8	7 4	14 19	nw. sw.	W. H. Campbell. A. J. Sharp.
zelhurst	Livingston		19	32.0							4.42	+2.64	2.66	0					******	W. H. Baker.
rmann	Gasconade	482	38 20	57.2	- 0.2	90	2	27	22	33	4.46 2.99	+ 1.98 + 0.62	2.06 1.00	T.	13	9	15	18	8.	C. T. Maushund. E. Dempsey.
uston Terson City		628 963	30	55.4	- 1.3	85	6 3	28	22	37	2.69	+0.54	1.40	T.	7 12	12	1 8	18	n.	Miss Emma Swift.
nsas Citydder		963 1,017	22		- 0.4	84 82	3	32		27 29	4.06 6.00	+ 1.85 + 3.47	2.17 2.70	T.	10 8	6 13	8	17 12	n. sw.	U. S. Weather Bureau J. F. Sharp.
monte	Pettis	863	22 24 24 29 24 17 22 22 35 18 57	54.6 56.8	- 1.5	89	3	33 29 35 32 30 32 29 29 29	23† 22 21†	29 34 26 33	3.93	+ 3.47 + 1.83 + 1.16	1.48	T.	12	5	6 5 12 0	21 11	n.	W. E. Walker, M. D. M. W. Serl.
banon	Laclede	1, 265 813	24	57. 8 55. 8	- 0.7 - 1.8 - 2.3	89 85 87 86	3	35	211	26	3.79	+1.16 + 0.54	1.20	T.	7 9	5 8 14	0	17	n.a n.	J. W. Keithley.
xington	Clay	864 1,088	24	54.9	- 2.3	86	4	30	22	41	2.64	+1.45 + 1.20	0.90	0.2	10	110	110	60	SW.	J. W. Keithley. W. C. Wilmott.
rshall	Dade	1,088	17	59.2	- 2.3 - 3.0 - 0.4	90	21	32	22	37 30	4.08	+1.20 + 1.68	1.66 2.55	T.	5 7 8 8 7	13	7 144	7.		C. S. Crow. Prof. W. H. Black.
ryville	Nodaway	160	22	50.6	- 3.0	86 77	3	29	22	36	7.47	+ 5.06	5. 12	2.0	8	15	3 9	13	nw.	J. R. Brink. J. R. White & Son.
unt Vernon	Lawrence	1,480 860	35	59.0	- 0.4	94	2	29	22	35	1.43 2.28	- 1.89 - 0.10	0.79	0 0 0	8 7	15 12 10	9	10	SW.	C. Jewell.
vadaegon	Holt	1,113		51.0	- 3.9	78	3†	25	23†	35	1.89	- 0.75	1.17	0	4	15		12	ne.	Tom Curry.
ttonsburg	Daviess	1, 139	31			87	3	30		32	5.50	+ 1.52	3.50	T	12	15 16 16	4 1 4 8 12	14	nw. ne.	Wm. Burton. Prof. P. J. Wilkins.
llaCharies	St. Charles	614	34	57.3	+ 3.5	87	3+	33	22	31	2.98	+ 0.56	1.61	T. T. T.	5 8	10	8	13 13	8.	L. C. Saeger. U. S. Weather Bureau
. Joseph	Buchanan	825	40	53.7	+ 1.0	80 88	3	32	31	28	5.44 2.63	+ 0.56 + 2.85 + 0.22	1.00	T.	10	10 6 9	12	13 16	nw. ne.	Do.
Louis (1) Louis (2)	St. Louis City	567 578	40	57.2	+ 1.0	88	3	33 32 35 36	22 22 31 27 22†	28 27 27		+ 0.22	1.15	T.	11	10	6 5	16	n.	St. Louis University.
Louis (2)blett.	Adair	1,000	17										1.06	T.	10	10	1	15	n.	W. H. Estes.
enton nionville	Grundy Putnam	812 1,072	19	52.8	- 2.8 - 2.5 - 0.8 - 0.5	83	3	32 28 32 32 32 27	22 26 22 22 22 22	27 32	4.23	+ 0.61 + 2.30 + 0.96	2.29	T. T. 0	111	10	6 5 8 8 17	16	n.	Geo. W. Davis. A. F. Smithson.
arrensburg	Johnson		19	57.2	- 0.8	84 86 88	1†	32	22	32 30 34 35	3.51	+ 0.96	1.10	0	111	10	8	13 18	nw.	A. F. Smithson. Prof. John H. Frick.
arrenton	Warren	865 700	22	59.8	- 0.5	88	3	27	22	35	2.44	+ 0.95	1.19	T. T.	9	5 6 9	17	8 5	ne.	J. R. Smith, M. D.
	Hickory		20									+ 1.02	1.35				17		8.	Mrs. S. A. Jackson.

[.] b. c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

^{**} Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings

[†] Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 6, Missouri Valley.

Stations	Watershad														D	ay o	f mo	nth.															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Tabel
Wyoming.				-																													
apahoe	Bighorn																																
rnumsin	Powder Bighorn	. 68	T.		****			****			****	****											****			.03							0
nnett	North Platte	. 20	.40		1.05	. 20	. 40									. 15					.09					.41		.2					3
g Creek Station	South Platte				1		1										T.		. 30	****	. 60		****				. 45						2
sper	North Platte	****	****				****			****		****	****	****		.03	****		1.05			****	****	.07	****	.08		1				.03	2
itennial	do	. 33	. 02	.05		. 69	. 13									. 60				. 05	. 05	T.				T.	. 12	T.					2
eyenneugwater	South Platte North Platte	. 62	.01		.01	. 20	. 03						****			. 22			T.	. 10 T	. 03		****			T.		T.		****		T.	0
rk	Clarks Fork.	.17	T.								T.				.04				.04	T.	T.				T.	. 35						T.	0
ly	Bighorn Clarks Fork.	.08	T.	.01							99	90	14		.04				T.						T.		.08			.01		T.	
me Lake	Tongue		.00	. 40						.00		. 00		****		.70		. 60	****	****	****				. 20	. 15						.20	1 2
nglas	North Platte Bighorn		.05			T.									.95	.30			. 20		.02				. 02	. 34						T.	
bois	Tongue					.07												50	****	****						. 20				****		.20	0 1
neta	Powder	. 60	.17												.10	. 65		. 00	. 45	T.	T.				T.	.18						.20	1
Mountain	North Platte	. 28	40	. 35			1.30				·					. 05											.05						. 2
ampment	do	T.	.11	. 20		. 13	1.00	1	1		1.			****		.09	T.	****	.37	T.	.02		****		T.		20			****			
t Laramie	do	. 31	T.			T.	. 15									. 30			T.	T.						T.	. 21						. (
Park	Bighorn	18	17	.09			.31	****			****									T.						10							. 5
lette	Powder	. 60	.02	. 17												. 20			. 55	.20	. 10	T.				.20							
rse Creek	Bighorn Powder	90		00						****																							
attville	Bighorn														later.					****	****		****	****	T.	. 16							
h	Niobrara	. 55	. 68			. 09										. 81			. 34		T.					T.	. 49						
tley	Bighorn	. 44				. 16	.05									. 68			.14	****							. 35	5					-
owles	B'le Fourche			. 29												. 11			. 05														
range	North Platte	.73		. 43	3	. 37	. 22	2								.78			.01								. 10)					. :
aderamie	Bighorn North Platte	. 10	.01		2	. 31	49									04				****	.14			****		. 11						. 01	1
	do																1																
abama Ranch	Bighorn			. 10)												. 05		. 10							. 1!	5						
k	Niobrara	.16	. 41	.00											T.	15		T.	T.	T.						05							-
nville	do	. 65	. 43	.07	7	03	3									.80		.08								. 30)					T.	
ore	B'le Fourche	. 33	.07	. 18	3											. 30			. 45		. 03					9		100	1	1	1	T T	
weastle	North Platte South Fork	.36	T.	. 48	8		1									T.	****		.05	T	T.			****		10	.13	3				T.	
h fluidan	Cheyenne.	1			1				1		1	1	1	1	1		1										1				1	1	1
hfinder	North Platte					07	. 24									. 03			. 05								. 16	5					-
ebluff	South Platte	1. 28	0.7		4	1 18	2 26	2		1			1	1	10	97	7	1 -	1														
e Ridgewell	B'le Fourche Bighorn	. 26	. 10	.10				. T.					T.			. 72			T.	. 22	. 21			T.			. 18	5 T.			. T.		
mbler	North Platte	. 24	.00	.00												. 04			.03														
wlins	do	. 00	. 191			22	. 18	5			. 02					. 04			. 03		. OR	1	1				. 17	7					
eky Point	Bighorn Powder			29	2	30	1.13	5								1 99		.03	.15	.02	T.				·								
atoga	North Platte	. 35	. 15	. 30)	87	. 38	8								. 04			T.	T.	.01		1		1.	.0.							
en Mile Creek	Tongue	100	10	. 60	0	87	.22	2																									
shone Dam	Bighorn	. 20	. 03		2						T		T.		.17						T.					T							
diers Home	Powder	. 50		.14	4											. 08	3		. 40														
th Pass City	North Platte B'le Fourche	1.48	. 23		2	25	. 02	2			. 07	. 02	. 05						. 03	. 04	T.					. T.	. 03	2					-
ermopolis	Bighorn	. 24		.08	3	17										. 07	7		. 16	. 20	****					0	2 .0	7					-
onaeatland	Tongue		. 31												. 81				. 65							1	3					10	0
ants Ranch	North Platte	. 90	T.	T.	***	08		Z				1	1			.16			. 10	T.							2	0					
ley	Bighorn	.10									T.					T.			. 50							1	5 T.				1:::	T.	. 1
odrock	Tongue Bighorn	00	. 25	. 14	4	T.							. 05			1.07	7	. 15	. 18	. 20	. 2	5		T.									7
ncote	North Platte	. 39	. 01	.10	0	07	7			1:::						1.26	3		. 05	.02	****					.0	11	9					
lowstone Park	North Platte Yellowstone	. 32	. 24	T.								5 . 14	diam'r.	I					1	. 112			0				21 . 1	4		1		T.	
rview Dome	Madison	. 20	. 20						1-00	Leve.	1.10	20			. 09										2	0							
latin	do	1 . 12	. UN	. 04							80				. 10						. 02	5											
nd Canyon ce Yellowstone	Yellowstonedo	. 39	.46	. 07	7						. 40	.30			05											1	0						
ris	do	. 38		T.			1		Aller III	1	. 2	1 10			. 05		1	T	.05	****	.00						4				-		-
erside	Madison										50	. 2	5																				
van Pass	Bighorn Yellowstone	1 . 24	. 3.	. 15						1	20	.30	.10		25											2	0						-
wer rams	do										. 19	2			.10											3	0						
per Geyser Basin	Madison			. 20	0							.50			T.						T.												
Montana.	Missouri		4*	7 0	0										т.			0.4	0.0	0.0	01							-					100
ricultural College.	Gallatin		90	5							5	4	.00	3	. 28	3		. 04	. 25	. 05	.2	3		T	1.2							. 2 T.	20
gusta	Sun		1.4	3 .5	0														. 16	. 05	.14	4			1	1							
d Butte	Milk Missouri	. 0	9 .98	8 .1	4			17.00			0	3 1 1	.01			***					T.					9							
timber	Yellowstone	.10	0 .10	0															. 25						1		ò					0	
timber Creek	do	. 46	3													. 0	3		. 05	. 04					1	6 .1	8						
lings	do Missouri	.00	.18	8 .10	6	-						T	T.		08			24					-		. 1	7 .0	2					0)2
ulder Nursery	Jefferson	. 04	× 010	9 . 4	2						3	0 . 0.	. 04					. 04	.09	.02	2 .2	0.	4		0		6				: :::	T.	
wendger	Yellowstone		. 52	2							08	5 2.0		T.												1	3						
oadview	do														22			. 08	.18							0	5					1	
sby	Rosebud		. 00	3 . 3	2											. 39	9	. 17	.01	. 06	. 01	1			0							0	12
steedbin Creek	do	111	II OF	3 0	1	1		1	1		8				20			. 17	.20						1	5 .2	0					. T.	
avon Ferry	Jefferson Missouri									* * * *	. 50	3 .2	. 18	.10	.00						. 0	3				0 .0	3						
	do					-1-0-1	2000	-1-66	-16		1 4 44	1 . 0						1/6		.04													ow B

TABLE 2.—Daily precipitation for October, 1911. District No. 6—Continued.

Stations.	Watershed.		2010												D	ay o	f mo	nth.															
Distriction.	Wateroueu.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	madel
onniag-Contd.																																	-
ester	Missouri		. 58	. 42																					. 20								1
nook	Milk		. 25	.40															700						.26								(
mons	Missouri Yellowstone	T.	1.26	.46								.02						.02	.13		.04				.20							.05	
deparkuradij	Yellowstone Marias	T.	. 05				••••			••••	T.	. 02	. 02		T.			.01	.01	. 06	. 05	••••			. 15	. 21						.02	1.
perw Agency	Musselshell Bighorn			.02	10					6550	T.				. 02			. 20	.06		.04				.18							T.	1
bertson	Missouri		. 25	.75								T.				.08		. 08		T.	T.	T.			. 13	.10					.10	. 10	В
Bankton	Marias Missouri	T.	.35	.43			****			****		****	. 29		T			33	.08	.01	T.				.09	••••			****	****		.02	
onty Creek	Jefferson Musselshell	. 08	.19	.09			•				. 19	. 86	. 10					. 23		.01					. 25	.07						T.	
Creek	Missouri		. 14	. 02				fac-			. 28		.01		. 48			. 38	. 09			. 04			. 22								
Wolf Camp tGallatin River	Gallatin	.03	.21	. 05	. 02						. 27		. 05	. 15				. 02	. 50	.20	.10	••••		.10	. 30			.07				.10	
daka	Little Mis-	.00	. 05	.10												. 23			T.	.16					T.	T.						T.	1
horn	Jefferson										.11	. 48						. 08			. 05					. 12							
lonh Creek	Yellowstone Jefferson		.08 T.	. 18			••••				T.	i. i8	T.	T.	T.			T.	.04	T.					T.			****				T.	
thead Creek	Yellowstone		1	. 13							(*)	. 23			. 23	. 02		. 15	. 02		.16				.07	. 18							
t Shaw	Missouri	. 13	1.00											****					T.					.07									
ter	Bighora Musselshell	T.	. 22	. 08			••••		****	••••	T.		••••	.10	. 22	.10 T		.30	T.	T.					. 13							. 02	
sgow	Milk Yellowstone	T.	(*)	1.00														. 13		(*)	70						700					T.	1
dbutte	Marias	. 25		.07														. 13	. 03		T.		.03		.05	Т.	Т.					.18	
hamyling	Powder Madison	.43	.37	.15							13				.07	. 77			T.						T.	. 20						- 05	5
at Falls	Missouri		.17	. 18														.08	.11		. 09											.01	
fway House	Musselshell		.21	. 53					••••		.37	. 35	. 21		.17	. 10		. 28	т.		****	. 03		****								****	-
ena	Milk Missouri	T.	1 .48	. 19							01	.58	/Tr		70		T.		T.				. 07									T.	1
hwood	do			1. 60							. 01	. 38	1.					. 25	. 40	.11	.02			Т.	.18							T.	5
ntleyes Canyon	Yellowstone Gallatin		.21	.22							43		.27 T.					. 27	T.						T.	. 43			Late.	1		T.	
bles Ranch	Milk		1.40	.04											T.				. 01		. 07				. 30							.02	2
ristownetree	Missourido		. 23	. 45						****		::::	****				. 62			. 08	.07			. 05								.05	-
talicine Lake	Milk Missouri	T.	.37	. 31														T.	T.					.11								.02	2
dred	Yellowstone		.08	.27											.09				. 04	T.			T.		.03							T.	-
es City	Madison	Т.	. 49					****			12	.25						. 02	T.		15	T.			. 01	10						.04	H
0	Yellowstone		T.								T.				.06	T.	1	.11	.31						. 26	. 20)					.12	
en Creek	Jefferson do										. 60	. 40	****		25			.11						****	. 19	.10)	****	****	****		T.	1
lari Lodge	Missouri Yellowstone	1:13	. 42		3													T.		.31	70	T.			T.								1
10va	Jefferson	0	. 25								.35	.10			T.											. 10)		****			.06	1
egateille.	Musselshell. Marias			.02			••••			****	30		.80	.05			. 25		. 60					****	. 20	.15							1
lby	do																																1
ney kane Ranch	Yellowstone Missouri	3	2 .45								1.17		T.			T.	.02	T.	T.		T.	T.	T.		.07			T.				. 10	3
ingbrook	Yellowstone Missouri	T.	. 45	1.60	3							19					. 19	T.	T.	T.	10			.03	.40						. 25	.05	
lit Farm	Milk		47	.2		T.													T.					. 05								.00	-
River Canyon	Sun Madison		. 18								18	.15			.00										.30			****					1
il Creek	Yellowstone	T.	.19															.06	T.	T.			. 07		.06							. 05	H
in Bridges	Jefferson Missouri Musselsnell Marias Madison Missouri Madison Musselshell Missouri do do												.1.		. 30			.00		. 10	. 10						. 11						1
entine	Musselshell		1.15	1.12	2							T.			T			.48	.12	T	T				. 22							. 10	
ier ginia City ill Rock Mount'n	Marias		. 40	.2	5								T.						.16						.11							T.	1
ll Rock Mount'n	Missouri		: 11	.2	1						.30	.10			118	1	.04	.20	.05	.03	.07				.05	.0€	3					****	
rm Springs C'k	Madison	0	4 .50	. 18	8						. 2	. 40	. 05		. 04			18		.02	.04						2						-1
ite Sulphur Sp's	Missouri		00	.10	0					.07					. 10			.02	.05		. 05		. 12	.07									
lderlf Creek	do	1:::	. 64	5 .9	2 T.				****			.47	T.						.00		. 23				.10							T.	6
odville	Jefferson	0	2 .50	.2	6						. 37	1.53			.00			. 02	T.														-
North Dakota.	N. 31 9		1	1		1				10			1.5	13						-				1								1 -	ı
lin	Knife		T.	.2	1								.78	. 28					T.	T.	T.	.08	8	. 09	.08							. 02	2
ichfield	Lt. Missouri Heart		00	8 .4	4 0	.01								1.18	5	.0		. 24	.00	.14			. 05		.15		T					.12	2
thold Agency	. Missouri		T.	.6	5								.78					. 90	T.	T.	.03	.0	.00		.03							T.	1
marckneho	Knife		0	0.0		. 01	T.						.36	.0				.02	T.	.02	.00	. 0		. 02	.04							T.	1
fordkinson	Knife Missouri Heart		· m	5	7										8		1			- 77											. 0	2	-
geley	James			1	5	8								1.4	7	.0	T.		.2	00	.00	3											
pingsher.	Missouri Cannon Bal		1	6 . 6	0							.04								00	.00	2 .00	5									T.	
llerton	James	. T.																			.06											T.	1
rrisonley	Missouri Grand		0	8 .1	2						1:::		T.	.3	9			T		.00	.00	2 .00	. 00		.00		T					T.	2
ttingerward	Cannon Bal	1	. T.									000		. 2	5	.2	0					.10	7 70	T.	T.		. T.					T.	1
nestown	Missouri James			1	0 .0	2 .08 T.	.1	0				. 24	.0	. 4	0				T.	00	.10	0	T.	T.	.01							T.	1
moine	Missouri	T	T.	T.	T.	2 .08 T. .18	.4	7						T.	.2					T.	T.	T.	.25									T.	,
rmarth	Lt. Missouri James	T	1 0	0 3	0	1 . 10	1.6	****					1:4	00	1.					. UK	1 .0		. 02		09							.02	8

TABLE 2.—Daily precipitation for October, 1911. District No. 6—Continued.

634-44	Waterbad														1	Day (of mo	nth.														*	
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
orth Dakota-Con.					1																											or and	
odora	Lt. Missouri.		1.26										T.	.80			. 38			T.						T.	T.					.02	
al ville	James Cannon Ball Missouri	T.	.03	.4			.10						.06	. 36		.02		.18		T.	.08			T. T.	.05	.07	. 04					.11	
poleon	Missouri Cannon Ball			.1	2 .0		.02							. 10	.08				. 06		T.	. 40		T.	.05	••••							
w Rockford	James																																
w Salem	Heart Cannon Ball	T.		. 10	0	. 02	.02						. 63			****		.12	****	. 05	. 05	.06		.03	.08	****						.02	
afer	Lt. Missouri.																																
ele	Missourido		T.		O T.						****			.39						T.	T.	.15		****	T.	• • • • •						T.	ľ
lliston	do		. 22	.13	2								T.	.09					. 01		.02	.02	T.		. 01							. 03	
South Dakota.																					*										-		1
ordeen	James Missouri	. 40 T	T.	.3	5	T.	1. 25	T.	T.					. 05	.02	T.	.27		.05	T.	т.				T.	.10 T.	.48						1
nour	do	.10		.2	0	4.10										.80	.20									. 40							1
lefourche	Cheyenne	.08		7		1.00	1.48					****	.52	.02		. 25	.88		.07	T.	• • • •		.02			. 25		1		****		T.	1
np Crook	Big Sioux Lt. Missouri.	T.	.02	.2	3													T.		T.		T.			.09	T.	T.					T. T.	1
cade Springs	Big Sioux Cheyenne	. 25	.07			. 08	1.17			1		1	.18			. 65	. 46		. 51				****			.15	.40						1
tlewood	Big Bioux	T.	T.	.19	T.	. 82	. 42	.01	T.			T.	. 60	.02	T.	.08	.86	T.	T.	. 02	T.	T.	. 01	T.	.01	T.	T.	T.				T.	
terville	Missourido	.00		.00	8	1. 10	1. 32						.07	1.40			.88										.25					. 15	1
k	James Missouri	.02	.02	. 23	3	1.08	. 15						.02	. 02		. 46	.52		т.	.08	T		.04		.08	90	.20					.01 T.	
tonwood	Cheyenne	. 46				. 16							.14			. 36			.13						T.	T.						T.	ı
dwood	do	.10				T						T.		T.		1.45			. 25	.50	. 50				T.	.75	.oi					. 25 T.	1
Smet	James			. 30	5	1.25	.05							1.		*	1.08	.10	. 40	T.	T.						T.					T. T.	1
rling	Chevenne	. 05	. 05	.03	5	. 20	. 05					.03				15			.31	.36						. 15	.05		****			T.	
M	Missouri Cheyenne	T.		.17	7	.12	.04						.17	. 29		10			T.	T. T.	T.		.05	.04	.01		T.					.31	1
Mountain	Cheyenne	.64	T.	30		****							.17	. 05				T.	T.	T.	T.		. 02	****			.52						1
lewood	do	T.	.05													. 15			. 10	.10	. 20	.10			. 20							.30 T.	1
ekafax.	Missourido	T.	.11	.11		3, 34	1.17				****			.09		. 60	.15		.09	.01	T.	T.		****	.09	T.	. 55			****		Т.	1
lkton	James	. 03		.06		.92	.09							. 05					. 05	.02					.08								I
dreau	James Big Sioux James	****		.8		1.11	1.57						T.	T.	****	. 25	.75	.05	. 22	T.			****				.11		****				1
ierick	do		T.	1.00									T.	.15			.20		90	T.	T.	T.			T.	90	T.				T.	T.	I
enmount	Cheyenne Missouri	.12		.09		3.75										. 96	. 32		. 30	. 20	.10				.30	. 00	.60					. 20	I
dingrove	Cheyenne	. 02	.11			.11												95	20	.01						.12						.01	
veys Ranch	do	. 40		. 50												.10		.10	.06	.04							. 05	. 06					1
2000	Missouri	25	OS	1		03		1				1				. 41	.05															T	
ewell	Missouri Cheyenne James			.16		T.	.24						T.	T.				.06	.01	T.	T.			T.			T.					T.	ł
rard	Jamesdo	.03	.01	. 16		2. 28	.63	****					.17	.02	****	.15	. 65	T.	.13	.02	T.	****	.01	T.	.01 T.	****	.09 T.					.01	
on	do		.08	. 2	5	.96	.04						.01	.01		.79	.06	.07		T.	T.		T.		T.		.01					.08	
oka	White							****					••••			.45			.04	T.	T.	****			****	.09	. 25			****	****	T.	١
nebec	Missouri																													,			ļ
ball	James Missouri					1.03	. 32							T.	****	. 70	.33		.03	.04						T.	.33						l
reek	White James	70	73			1 10			****																		T.					T.	
Delle	Cheyenne	.17	Т.	. 22	2							. 03				1.12	.80		. 09	. 20	.15	****				. 45	.04	****				.11	Į.
mon	Grand	****	.16										.60	. 02		. 05		.12	. 05						.10		. 50					. 05	1
dersonion	White Missouri	.10	T.	.11		2.60	2.20						. 41	. 07		. 56	1.25		. 38	T. T.	.03 T.		T.	T.			. 35	.06					1
ston	do		. 02	. 08		.38	. 03							. 04				. 11		. 04				. 03	.10		. 05					.01	1
no	do	.08		.04		2. 10	1.30						.40	T.		1.05	.43		T.	.02	**		T.				. 48					. 07	1
ank II	Minnesota James	. 21	.49	. 35		2.00	1. 27	. 03						. 53	.10	1.15	. 63	.29			. 09		T.	T.		. 20			• • • •				
ridge	Missouri	. 24																.00					T.		.10								-
do	White Cheyenne			.08		. 50										. 60	. 38							****		.10		****					1
ka	James	. 03	.15	. 02	.07	. 40	.03				.02		.17							T.	T. T.				.10							. 07	
an	Cheyenne Missouri	T.	.08	. 19			****		****	****			****			. 05		T.	T.	T.	T.				••••	.11						.02	
ston	James	.14				4.40				.10						2.14	. 20	T			.14	.18				.39						.08	
rekinton	James		. 02	.17	.02	2, 61								. 02		1.06		T.		. 02	T.					.02	.02					.01	
xek	Missouri	. 05	. 20			****								. 40	.03			00	.12	.05			. 63	.02	. 05								J
field	Cheyenne James		.17	. 25			. 76						.03	.10		. 40	. 25	T.	T.	T.	. 05				.04		.02					.06	I
bud	Cheyenne White	. 46	T.	. 20		T.						. 20	T.			.37	. 25		.17	.05	. 05					.35	. 40					. 05	1
bud Agency	do															. 80	. 35 .		. 20	1.	T.		1.			.30	. 40						1
yn	Big Sioux Missouri	. 02		. 48	3	1.15							T.	. 26			.26	00		.08	T.		T.		15						T	T.	
x Falls	Big Sioux	. 82		.30		4.04	. 15						. 28	.02		. 40	.72		T.	T.	T.		T. T.		.10		.16						å
m	Grand Cheyenne	. 01	.01	. 13									. 01			.17		. 05				T.				.02						. 20	H
han	Missouri	T.	.14	.20			.85							T.			.48			T.			T.				.16					T.	Į
ber Lake	Grand Missouri	T.	T.	. 10		T.		T.					. 20	. 18		T.			T.	.02	T.	T.	T.		. 03	T.	.04		T.			T.	i
dall	Chevenne	.12		.01		T.							T.			. 22	. 83		T.	T.	T.				T.	. 67	T.					. 05	ł
nillion	Missouri Cheyenne	.06		. 02		1.91	.71						.32			0.3	1 11				. 05		. 03			. 50	T.						ŀ
ertown II	Big Sioux	. 23		. 41			1 25							1.60	T.	*	.70 .91 .43				T.	T.		T.	****	.05							I
sington Springs. telLake	James			.23		3. 27	.43						. 84	.02		.33	. 91	. 22	.04	.03 T.							.17		••••	••••			1
Prom ply mike.	Missourch		AR	. 85		4 80	.00					****	1.			.01	1.15 1.43	. 00		4.0	**		· UL	40			100						

TABLE 2.—Daily precipitation for October, 1911. District No. 6—Continued.

gu															I	sy o	f mo	nth.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Minnesota.																																
pestone	Big Sioux	.01	. 27			2.75	2.37						.11	T.		. 29		T.	.33	T.		T.	T.			.12			.13			
Colorado.														120									-									
	Republican .	94	T.			61	. 23	. "								1	.35					. 15					T.					
kronlbion Lake	South Platte																.11										т.					
rriba (near) uldhurst	South Platte	.15				.50													T.	.19	.12						T.	.10	T.		****	
ennet (near) oulder	do	.62				12										• • • • •	••••		.04	. 44	.12		••••	••••		• • • •	.10	.07				
urlington	Republican .	- 04	. 00			. 90										. 23					.18						.02	. 06	T.			
assellsastle Rock	South Platte	. 28				1.0	T.									T.		T.	. 25	.15 .10 .30	.10	.01					T.					****
astle Rock heesman heyenne Wells	Smoky Hill	T.			T	.50	.10										.11	••••		.30		.15		••••		****	T.	. 50	T.			
ope	Republican .		.16	. 60	.12	.2			T.							10				.38							T.		.16			
enver	south Platte	.02		. 21	T.	.0	. 01					T.				10 T.	29		.04	.06	.08 T.	.14					.07	.06				T.
dgewater stes Park Fish H'y	do	. 55			26	.0										T.			.09	.03	. 03					****	.08	. 30		****		****
ort Collins	do	. 53	.01			.0													.15	.05							. 05	- 0				
ort Lupton ort Morgan	do	.16				.5	.07	7								. 20					. 15											
rances	do	. 40		.04		.2	1.18									.08			.06		.10				T		15	.21			****	****
ort Morgan rances rys Ranch eorgetown	do		T.		.00	.3	2		T.						. 05				.28	.28	. 15 T.						.32		ï.ii			. 05
reeley	do		.25			.3	4												••••		.13	****		****		****						****
[artsel	do	1			- Af	1 2	1	1	1		1									.01	.02						.03	T.	.06		T.	. 01
(awthorne (olyoke (near)	do	.93	T.			1.4	9 .13							7	4					- 44												
laho Springs	do	.40				.0	8 T.												T.	.31	T.											
eotaaporte		.2	.12				5 .0.					1				. 00			1.	1.												
aporte eroy (near) ongmont ongs Peak (near). loraine latte Canon t. Cloud edgwick ill Mine	do																		.35		T.		••••		****							
ongs Peak (near).	do	.50	.01	.0	3	.5	0 .0	.0											.30	. 67	.05							.0	B			
loraine	do	.37		.0		.2	.5	5				• • • •			-			****		. 42	.05	. 05	.15				T.					
t. Cloud	,do		.50	T.	.4	5 .4	3									.10			.10	. 15							. 15					
edgwickill Mine	do	. 38	.10				T.	T.								.60	.10		.50	.30	T.						.30	1.1	8 . 20	118		
ill Mine picer (near) terling	do					. 7	5 .2	5																			T.					
Vaterdale	do	. 57	.0			. 0	8 .0	6											*	. 65											. 30	
Vaterdale Vray uma	. Republican .	. Ot	T.			1.3	4 T.						-	1	-	. 72		T.			.12		****			****	T.	T.				****
Nebraska.		1	1		1			1	1	-	1		1	1			1					7					10					
1																					-		113				0.4					
linsworth	. Niobrara	12	0 0	9		1 0	7 1 7	2		4						.11	.16				. 03	T.	T.				05					
Illiance	. North Platte	e . 4	3			4	0									. 60			.10		.15					T.	- 40				39	
lma Arden	. Loup	13	2 .0	5		3.0	0	5								.45	.00			T.	T.		T.				. 12					
Ashland	Platte	. 1	5 T.	0	1	1.1	7 . 3	0	1	1.			. 0	4 T		.00	1.33			T	T.	.10	T.			T.	. 50	-		.08	.10	
uburn	. Little Ne-	5. 1	3 .0	4 .1	9	1	5 .0	2 T					0	3 .8	0		.00									****	. 18			.10	.00	
Beatrice	Blue	1.6	2 T.	1 5	1	1	0 T						1	3 .2	7		. 33										. 19			.12		
Beaver City	. Republican	.0	9	0	4	5	1 .6	7							7		. 50										T.		T.	.00		
Bellevue Blair	Missouri	1	0 .0	1 .0	3	3	9 .8	0 .0	2				. 0	2			. 07						T.				. 02				.12	
Bloomfield Bridgeport	do	00	3 T.		. 1.7	5 .1	5 T			4			. T			. 40	2.10										. 20					***
Broken Bow	Loup	4	5 .0	2 .1	5	. 3. 8	3						. T			46	3										. 00					
Burge		1	2 T	i	7	3.6	61.1	2								. 6	.18		T.	T.	T.					T.	.50					
allaway	Loup																E0										T		T.	T		
Cambridge	North Platt	e .3	7 .0	5 .4	3	. 1.0	51.4	5	: :::							.3	3		.00				. 03			T.	. 46	1				
olumbus II	Loup	8	3 .1	2 .0	3		01.4	9 .4	à					ġ		A	07	. 37		T							. OR	.2	3		T	
reighton	Blue	6	5 .1	0		1	5 3	RI.		-		1	- 40	O:			21										2	J		2	2	
Culbertson	Republican		0	8	4	1 . 5	3 .2	2								1.13 T.	.81										T.	1:::				
David City	Blue	0	2 .0	2 .0	2		71.1	0									. 3!											5			0	8
Dawson	maha.						9000			1		1					1	1		4				1		1000	4	4			1	
Dumas	Loup	0	4		. 2.0	61.1	91.1	8								. 2	. 36			T.	T.	T.					. T.		i			
Ewing 1	Elkhorn	0														2	BIT ON	2		1	1		1				3	5				
Fairbury	Blue	0	2 T.			17 T		-		1		- 1	1 2 3	71			14	1 .2	5				T.					1	2		. 2	3
ort Robinson	Niobrara	3	5 0	1 .3	37		9 .0	4								0	1.0	8	. 0.	2 .2	0	m				0	1 .4	2				
Franklin	Platte	. T	. T	41	0 .4	0	1.0	3 .0	4								.1	5	1								. T.				1	6
Fullerton	Loup	3	2 .2	7		. 1.	0 2. 3	35								. T.	.2	5									3	8				. T
GenevaGenoa	Loup		5 T	(33	1.:	25 1.9	95	()2			T	. T		0	4 . 2	81			00	T.	T.					4			1	8
GordonGosper	Niobrara		1	8 .1	5	2.	22							27		5	9		.0	8						7	T					
Gothenburg Grand Island	Platte	3	15 .0	15 T		. 1.	32 .	78					T			2	0 .3	0			. T.						1	0				
Grand Island	Republican		8 .0	4 . (38	2	10	76								6	4				T.						. T					
Greeley	Loup	2	6 .0	6		. 3.	02						07			0	9 .0	5									1	0				
Halsey Hartington	Missouri		77 .1	PM		12.	94 .	96	:::				T			0	81.5	2								. T	2	0				
Harvard	Blue			33	71.																											
Hastings Hayes Center	Republican			. (SE		98 .												-1000													

Table 2.—Daily precipitation for October, 1911. District No. 6—Continued.

															D	ay o	f mo	nth.													- 6	
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Nebraska-Contd.																											00	00		200	09	
ebronemingford	Blue Niobrara	1. 22	.01	.01		.09	.07						T.				.12			.16		.05			****		. 34					
illside	North Platte	. 10	T.	-17		2.90	. 11										. 51		T.		T.						.04	••••		****	.15	••••
oldrege	Republican . Elkhorn	. 15				. 70	. 95						T.				.13				- 1		T.				. 20			. 20	.15 T.	
ulf	North Platte Republican .	. 89	10	. 25	. 45		.05									. 28			.03		T				****		****	••••	T.			****
mperial	Platte					. 95	. 14										. 22													T.		
imball	South Patte Niobrara		.12	****	.11	. 06 4. 66										. 62	1.26		T.	Т.		****					0.0					
irkwood	North Platte	.17	. 16			1.38			0.00							. 34																
exington	Plattedo	T.	.08	1.11 T		.20	. 95							****			. 68				****	T.	T.	***			.10			. 20	.01	.01
incolnodgepole	South Platte	.18	.13	. 05		1.23										. 42					T.						.19					
oup City	Loup	. 21	.07			1. 14 1 3. 40							• • • • •	****		. 25					T.			***			.19					
leCook	Republican.						.06									. 41	. 49										· · · ·				· · · ·	
ladison	Elkhorn	T.	T.	.07		. 96								T.		T.	. 62			T.	T.	T.		••••							.20	****
arquette	Loup	. 10	.09	.10		3.50	. 48						T.			1.72	. 15		. 03	T.						T.	. 38					
linden	Blue North Platte	.01	.07	21		1.17								. 01		. 35	. 13					****			****		. 17					****
Iulien (near)	Loup	. 32	. 15			1.80									1.32				. 02							3.00	T.					T.
ebraska City	Missouri Elkhorn	.08	T.			.30	92	****					. 10	.12		.06	. 26						T.		****		.06			. 10		T.
orth Loup	Loup	.30	.08		1.20	2.22										T.	T.				T.					. 30						
orth Platte	Platte Elkhorn	. 22	.02	. 02	. 01	2.61	T			****		01	06			. 61	. 13		****	.01	T	****	T.				.11	****				****
akdale	Missouri	T.	T.	. 05		. 15	. 27	.01					T.	T.			. 65						T.				T.			. 07	.06	
rdalisade	Republican .	. 24		1.41	22	2.90 .15 1.42	.37	1.87				.17	****			1.02										***						****
awnee City	Great Ne-		.02	.08		. 25							1.12				.12										. 28					
axton	maha. South Platte	30	. 02			2.20	.05										. 44		T.		T.						.02					
lymouth	Blue			. 02		. 06					110		. 96	All			. 30										. 35				.17	
urdum	Loupdo		.07	. 14		.02	4.00 2.00			****						.08	. 40		T.	T.	T.						.17					
edcloud	Republican.	. 03	.01			.92 .08 .86	.14							T.			.12										T.	T.		. 19	.05	
t. Libory	Loup		.04			. 86 1. 02	2.23						T.			.07			****		. 04			• • • • •		****	. 19			.04		
t. Paulantee	Missouri	. 05				2.01	1.85									.90	1.30										2.00					
argent []	Loup Platte	.55				1.15	1.87							T.	T.		T.	****			****		:-				.20		T.			
cottsbluff	North Platte	. 55	.01	.17		. 46	. 15									. 46			T.								.16					T.
eward	Blue South Platte	T.	.15		. 30	. 40	• • • •						. 80			. 05		. 10			. 24									. 20		1.
idney pringview	Niobrara	. 38				3.15	.20									1.10	. 40		.10	T.	T.					T.	.50				15	
tantontratton	Elkhorn Republican.				80	1.25	. 73					. 20					1.07				T.		T.				.10				. 10	
uperior	do	1.30					. 15																							.10		
yracuse	Lt. Nemaha. Gt. Nemaha.	T.	.03	.02	****	.37											.06										.16					
ekamah	Missouri	1.14	.02			.75	. 90						.07				. 08										.15				.13	
obias	Blue Niobrara		.06	. 03		1.93		.01						****		2.08			.07		.01		T.			.15	.23					
Vahoo	Platte		. 05		. 20	. 48											.10										19			. 25		
Vakefield Valthill []	Elkhorn Missouri	1 28				1.23	. 87		T			****	.08			. 03											.05					
Vatertown	Platte					1.06	3.50									.50					. 01						. 15					
Vauneta Veeping Water	Republican . Missouri	67	T	02	1.25	.85	.06							. 09		1.20	.34						T.	****			.02			T.	. 13	
Vestpoint	Elkhorn					. 91	1.40										. 13											T.				
Visner	Blue	T.	T			1.25	1.20				.06		.13				.18				T.			••••			.20			T.	.23	
	Ditte	.03	1	****			. 0.		1		1									1		1										
Iowa.													-							-					1	-	100					1
fton	Missouri	1.20		. 35		. 21								. 47		T. T.							T. T.				.02				. 25	
llerton	Chariton	2.00	T. T.	T.		1.52				T.	. 04		. 40	. 63		. 01	. 40						.06				. 28					
tlantic	. Nishnabotna	. 85	T.	. 04		. 30	. 35	.01						. 02			.01						. 02		1.		T.				. 22	
udubon	Missouri	1.90	.02 T.			.79	. 29						. 23	. 65			.01						.06				. 06			.00	.11	
enterville	Chariton	2.10	M	T.		.10					. 04				T.	. 05				T.			T.				. 15 T.				.75	
hariton	Nodaway	2.76		T.	. 19	T.	T.			T.		T.	. 05	. 82		Т.	. 38	T.		T.				. 05				. 02			. 20	T.
orning	do	1.17	T.	. 34		. 18	. 03						T.	. 21									T.				. 13				. 22	
orydonouncil Bluffs	. Chariton Missouri	2.00		T.	****	.10		. 05		T.			T.	. 42			.76	.04					T.				T.				.25	
reston []	do	1.91	. 04			T.	.18	T.						. 39		T.				T.			.01	T.				T.			. 22	
umberland Denison	. Nodaway Missouri	.1.	. 05			. 08							.07			T.	.15						T.				. 15				. 09	
lliott	. Nishnabotna	1.1	. 02	.09		. 27	. 12						. 55	. 08			T.						T.		1.		T.				. 37	
reenfield	Nodaway	1.2	. 03 T.			.18	. 19						. 12	.00			.20										. 07				111	
nwood	. Big Sioux	0	8	. 12		1.80	1.13	T.					. 28	T.		.07	. 43		.08	.04	T.		.01 T.				. 32				. 18	
amoniarrabee	. Missouri Little Sioux	2.6		.03		. 33	. 02	.01					. 08	. 68	1	. 15	1.00														. 18	
e Mars	. Floyd	. 0		. 0		1.43							.09		T.		. 52	10000					T.				. 32 T.			.00		
enoxeon.	Missourido		5 . Of			.30		.00		T.			T.	. 40		. 55	.60						T.				.10			T.		
ittle Sioux	. Little Sioux	. 1	8			. 73	1. 12	2					. 22		1		.36										. 16				. 08	
ogan	. Missouri	. 2 T.	O	.1		.38	. 75						. 2	.98		.07	1. 10 T.			.09			T.				T.				. 18	
lurray	do	1.3		4 . 13	3	. 22	. 01	1					.06	. 39		. 13			. 02				T.				. 13	3			.2	
orthboro	do	1.1	0 .20	. 1	7	. 13	.50	6 .03				.01	. 16				.12										. 15				. 20	
nawa	do	0				. 80	. 9	5					.08		5		.10						T.				. 12				. 0	
acific Junction	do	6	9 T.			. 43	.0	5															F83		1000		T.			Т.	.17	
ock Rapids	Big Sioux			1		1.80 2.10	1.6	0 .00					. 45		T.	.11	.37		. 08	T.	1	.80	1.			.3						

TABLE 2 .- Daily precipitation for October, 1911. District No. 6-Continued.

Stations.	Watershed.					1		1								_					_											
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
			1							18		-		1																		
ux Center	Big Sioux Floyd			.18		1.20	2. 47	.09					.06 .62	.54	. 02	1.14	.29	T.	. 03		T.		т.				.12	.12	****			
ux City	Missouri	.03		.01	1 70	2.03	:ii									.09	. 52				.01		.04			T.	.16					.10
ncer			.02	. 05	1.70	.38	.04						. 21		. 05		. 13						T.			****	.20 T.			. 15	.12	
shtadburn	Chariton				••••	1.82	T.			T.			.06			.22	. 05			.01			T.				. 25 T.				.32	
Kansas.																		in	494			- 05										1000
lene]]icultural College	Smoky Hill. Kansas	.30		.02									. 60	.30			T										.35	.42	.01	. 05	.14	
on	Solomon	. 05	T.				.09			T.				T.			T.										.10		T.	.12		****
hison	Missouri Solomon	1.32	Т.	.01		. 10	••••	T.	••••	Т.			T.	. 52													. 10	.05 T.	T.	T.	. 15	
reman	Republican . Blue	.04	.04			. 32	.05									.35	.71											****				
tralia	do	.90		.05		. 19	T.	T.					. 15				T.										. 45			T.	T.	T.
pman Center	Smoky Hill. Republican.	.11		T.		.16	T.						2.00	.32			Т.								****		.38			T.	.15	
cordia	do	.02	.04 T.	. 01	T.	. 53	.04 T.	.01					.01			. 16	.31 T							••••						.08	.03	
smore	Solomon	.08	.06			.24	.24									. 07	. 10											T.	Т.		.18	
worth	Republican . Smoky Hill .					. 04	.70	. 03	Charles A		****		.30	. 48		.07	.35				****							.34		.08		
erprise	Kansas	.09		T.	••••	.20	••••		Т.	••••			.71				.01	T.		• • • • •	• • • •		••••			• • • •	.08	.31		.06 T.	.08	
nsworth	Smoky Hill.	.02	. 08			.20	. 40										T.												.09	.30		
nkfort	Osage Blue	. 87				. 40	Т.						.10			. 67	. 15									****	. 40			.12		
nettdland	Osage Smoky Hill.	. 29	.36		.04	.24	T.	••••	••••				.37	. 07		45	••••	••••		• • • • •	т.	• • • •	• • • • •					. 26		. 05	. 23	T.
e	Blue	. 05				.20								1.86									T.				.20			. 10		
over	Republican .	3.88 1.10				. 04	.13						Т.				. 11						Τ.				T.	T.		.05	.06	
City	Republican . Smoky Hill . Solomon	T.	.02 T.	••••	.04	.06							****			.03												.02	.07	. 10		****
ton	Kansas	1.70	T.			.15						T.		1.42			.30										. 54			T.	. 10	
ie	Solomon Republican.	T.	.30			. 26										Т.												T.		.23		****
rencevenworth	Kansas Missouri	1.51	.01	.03 T.	. 10	14	••••		. 01				. 65	1.32	.04	.06		• • • •			••••						. 19	.31			.10	
anon	Solomon																				т.						T.			T.		T.
isborg	Wh. Woman Smoky Hill.		.01		.42	.15							1.33								1.						T.	. 05			.18	
katoneapolis	Republican . Solomon		.04 T.			.12	. 40										.02 T.				• • • •						.09	T.		.11		
an	Osage	.09	. 67	.01										.30		.37												. 27	. 08			
oma ton	Saline Republican .	.05				.33	.37									T.	. 16					****		****			T.	T.	T.	.15		. 02
rlinto	Blue	. 03 5. 62	. 05			.39							. 54			.17	.71						T				.24	T.		.12	T.	
he	Kansas	. 21 T.					.01						1. 12			T.		****										. 20	. 05	. 01		
ge City	Osagedo	Т.	T.	T.		: 02	100		.07					. 33														.40 T.	T.	.07	.09	
llipsburg nville	Solomon Smoky.Hill.	.05	. 03			. 16	. 36									T.	. 18											T.	. 04	.16		
santon	Osage	.17	1.67		.30	. 05								1. 23		. 60	.08											. 25		. 03	.15	
ublicsell	Republican . Smoky Hill.	T.	.01			.07	.04	••••																			.05	.08		12 T.	.03	
sell Springs Francis	Republican .	T.	.02		.36	.64										. 58	99			****	0.000						.02	.05 T.				
na	Smoky Hill.	. 15	T.			. 21	T.						T.	. 10			T.											. 43		. 02		
th Center	Wh. Woman Solomon		.03			. 55	. 61											****		• • • •					****			T.	. 14	. 62		
ekaley Falls	Kansasdo	.03		T.		.02		T						. 15			T. T.										. 30			.08	.04	
land	do	. 50	.04	. 05		.04								- 44														. 26	.04			
keeneyllace	Smoky Hill.		.04			. 49														•								.09		****	****	
mego	Kansas	.35	T.	T.		. 10		T.					T.	.10			T.										. 22	. 20	****	T.	. 10	
Missouri.				4			5		× ×					1				٠.				E V										
oretbleton City	Osage	. 43	.50	.30	10	T.	T.	T.	T.					1. 33	T.	. 95	.11										20	. 29	T.			
our.	do	.12	2.37		.39			T.						1. 78			.32										. 20	. 25	.06	/09	.18	
lonhany	Grand	4. 17				. 19								1.03			.25							. 26		****		. 20			. 24	
var	Osage Missouri	. 23			2.30		1.45							. 61								. 26							200	.11	. 12	.04
nville	Grand	1.90	.07	.02	.02		.08	.02	.06	.03	T.			.02	T.	.36	.16											.11	. 20		.14	.10
ton	Osage Missouri	1.25	.41	. 32		.03	.05	.02	.07					. 65		.25												.00	.02	.25	.12	
ception	do	2.82	.09	.03		. 22	T.						. 65	.77			T.						T.				. 07			T.	.13	
ker orado Springs	Oesge Missouri. Grand Osage Missouri. do Gasconade Osage. Missouri. de Grand Osage. Grand Missouri. Grand Gasconade	.37	2. 10		.63	T.	.08							. 88	.13	.48						. 44						T.		.15	. 22	
ette	Missourl	2.31	.02	. 35	18	.03		02	.10					-44	.00	. 82	T.			• • • • •		.00						T.			.20	
gow II	do	2.48	. 26	.08	.38		.01							. 68		1.52				770	-		· m				000	.02		TP.	-04	.01
nt City	Osage	. 12	1.28	.18	.10	T.	T.	T.	.02	T.			. 90	.70		T.	.89				1.		1.				. 20	.10	.05		.19	.01
mann	Grand	2.66	2.00	* 20		.06	T	30					. 13	.78	.02	.05	. 24						T.				. 20	12	.01	T.	. 28	.01
iston.	Gasconade.		.67		.24			1.00	T.					. 24	T.		T.				T.	. 65	.05						.02		.14	.02
erson City	MissouridoGrand	.00	1.40	. 10	. 14	::::		****	.00	.01			1.48	1.38	.03	. 55						****	.00				. 12	14	1	. 10	. 21	
der II	Grand Missouri	2.70	10	T	99		T.	l do	99	. 05			. 88	1.08	. 02	.96						****					. 15		.05		. 16	
	Osage Missourido								.04					1.10								. 50								T.	. 13	

TABLE 2 .- Daily precipitation for October, 1911. District No. 6-Continued.

			,												1	Day	of me	onth														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Missouri-Con.																															is me	
ockwood	Osage		. 61											1, 66 T.								. 33							T.			
arshailaryville []	Missouri do	5. 12	.04	T.	.07	.34			. 15				. 13	1.17		1.09	.00		2									. 25	****	Т.	.10	.0
ount Vernon	Osage		. 03		. 79		.17	.11	-					. 62	.01							. 55						-	70		. 15	
evada	Missouri	.09	T.		. 38	. 26	T.	T.	1.	T.			1. 17	. 30	****		T.		****				T.			****	.38	1.	1.	. 08	T.	
ttonsburg	Grand	3.50	:											1,70													.30					
olla	Gasconade	1.61	T.	T.	. 20	****			.04					T.	.10	T.					.03	. 52		****		****		T.	T.	.01	27	****
. Joseph	do	3.76	. 02	T.		.06	T.						1.15			T.	T.										. 33			. 03		
. Louis (1) . Louis (2)	Mississippi.s	1.15	.01	T.	1.12		.12	T.						.01	T.	.03	T.	T.		T.		.76	.02			****		.03	T.	T.	.15	••••
blett	Chariton																															
rentonnionville []	Grand Chariton	2 15	.02	T.	T.	.10	.15	T.	T				1.06	T.	T.	.90	.06	T					. 05	.08			.27	30			. 10	OR
arrensburg	Missouri	1.00	.30		. 12	. 16	T.	T.	. 13				T.	1.10	T.	. 04	.39											. 04	.12	T.	.11	
arrenton	Osage	1.19	1.03	.05 T.		.11	.01	. 23	.03					47	.01	.00												.09		-07	.22	
heatland	do	. 40					.35							.70	.15													.15				
				1	1	-		1	1	1	1			1	1	1	1		1	1	1	1				1			1	-		
														he n	ext r	neas	urem	ent.													*	
						Pn	para ecini	te da	tes o	the	s no	t rec	oraec endi	ng or	n the	mo	mine	wh	on it	in m	agen	hari										

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 6, Missouri Valley.

	1							Wyon	ning.								-	50	delab			Mont	ann.		7thie		+	
Date.	Bas	sin.	Chey	enne.	Lare	ort mie.	Len	der.	New	eastle.	Pathi	Inder.	Sheri	dan.	Yell stone	ow- Park.	ВШ	ings.	Dill	on.	Hav	те.	Hele	na.	Lew		Mat	ta.
7/2	Max.	Min.																										
1 2 3 4 5	78 69 70 69 72	40 38 36 40 44	66 62 56 66 53	48 44 39 37 43	68 69 68 72 60	50 49 42 31 50	61 63 58 59 50	41 39 30 23 88	55 56 54 64 63	40 . 46 38 31 38	65 60 54 66 66	43 46 35 35 46	57 64 58 65 57	37 37 34 26 34	47 47 41 56 55	34 37 31 27 25	52 52 63 58 61	46 36 40 25 27	72 63 64 68 75	32 33 32 31 30	55 50 52 61 64	41 45 40 33 37	54 46 50 54 62	38 33 34 31 35	55 49 47 52 56	41 38 35 29 31	59 47 53 64 67	42 39 41 33 33
6 7 8 9	76 74 79 61 60	48 42 36 28 30	57 64 66 72 74	39 34 35 37 36	67 73 77 80 79	44 31 30 31 31	63 67 69 60 54	82 82 32 83 38	65 68 70 68	38 36 43 50 43	58 65 67 67 67	34 32 34 44 44	69 75 82 79 74	28 32 31 29 33	59 67 69 67 42	27 32 34 37 30	72 80 86 86 76	28 82 80 34 29	78 84 86 82 88	32 32 34 32 31	64 76 78 79 70	39 42 38 39 42	63 69 75 76 62	36 36 37 44 31	70 78 82 84 70	28 35 37 38 38	67 75 78 77 73	34 35 38 30 42
1 2 3 4 15	66 64 70 68 76	31 28 30 33 35	61 66 71 74 46	36 37 41 42 32	70 69 73 80 48	33 36 27 29 35	57 58 67 67 57	34 28 28 31 35	67 65 67 65 51	38 40 42 44 32	54 56 67 66 60	31 37 29 47 33	65 58 66 69 56	26 31 27 34 36	39 43 57 49 49	31 30 29 29 30	65 62 73 62 62	23 38 24 38 42	86 89 73 74 77	32 31 30 31 32	64 63 67 61 65	30 36 40 49 42	52 55 51 53	31 35 34 41 41	57 76 52 52 52	29 27 32 39 87	65 65 68 65 60	3 3 3 3
16 17 18 19	70 68 66 65 60	38 30 28 24 26	56 63 45 34 32	34 38 28 23 13	60 70 40 49 39	33 26 32 25 12	66 66 41 38 34	27 27 29 23 16	54 50 42 34 34	38 36 28 28 20	60 63 56 36 34	28 37 28 22 23	63 56 43 37 38	32 31 31 22 22	54 53 37 36 34	26 35 20 16 16	71 60 50 46 42	30 42 32 32 32 22	78 76 70 64 63	31 32 29 26 22	62 48 41 44 45	43 31 33 32 31	64 55 44 44 40	43 35 30 31 29	63 50 45 40 40	38 27 29 22 24	58 54 43 43 45	3 3 2 1
21 22 23 24 25	59 60 66 60 54	30 30 31 24 11	42 54 56 53 33	13 34 30 33 28	52 59 61 58 38	11 30 22 27 35	48 53 53 55 39	12 20 26 28 29	38 48 52 51 40	20 26 30 30 28	46 52 60 54 46	15 29 29 36 30	51 55 55 44 31	18 28 26 30 27	47 52 50 44 28	13 20 28 26 14	58 63 58 37 31	21 28 23 32 26	68 72 69 65 58	28 30 27 24 25	63 55 52 35 36	31 37 33 28 27	52 50 51 39 35	26 28 28 26 26 23	56 54 62 38 38	29 32 29 20 12	61 61 53 50 37	21 31 21 21 21
26 27 28 29 30	60 51 62 60 57 49	18 19 21 18 21 8	30 26 45 51 50 48	22 17 16 20 21 20	38 39 42 50 51 52	26 5 9 17 19 17	36 37 43 47 46 44	21 14 13 14 15 15	34 32 34 50 48 40	20 10 11 14 20 21	34 32 40 45 44 41	24 13 13 16 19 17	33 36 44 52 44 36	16 11 15 14 18 12	33 41 41 46 46 38	5 5 9 9 19 15	41 41 56 48 48 35	15 11 12 24 18 17	53 52 58 60 64 57	15 12 27 29 22 18	38 43 48 48 41 29	23 17 19 24 25 11	36 35 40 43 46 30	18 16 16 20 25 23	36 34 50 47 44	10 11 16 20 19	34 45 51 47 41 34	1 1 1 2 1
Mns	65. 1	29.5	53.9	31.3	59.6	28.8	53.7	26.5	52.4	31.6	54.2	30.6	55.2	26.7	47.3	23.8	57.9	28.2	67.9	28. 1	54.7	33.8	50.6	30.8	54.6	28.3	56.1	31.
		Mon	tana.	W.		1071		1	North 1	Dakota							116			8	outh 1	Dakoti	.					
Date.	Miles	City.	Poj	plar.		thold ncy.	Bism	arek.	Dick	inson.		mes- wn.	wini	ston.	Ab	er- n.§§	Hu	ron.	Kad	oka.	Kim	ball.	Lem	mon.	Pie	rre.	Ra	pid y.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.																		
1 2 3 4 5	65 65 55 68 63	49 52 43 34 43	63 59 51 65 68	39 37 41 30 34	58 52 52 62 63	38 46 43 42 35	.52 55 53 59 55	42 47 43 43 44	62 50 51 62 63	41 41 40 35 38	51 55 58 58 58	49 25 47 43 37	51 52 51 60 63	36 47 44 39 38	54 58 62 58 50	49 49 49 43 44	52 58 67 62 51	48 49 50 41 45	57 56 63 67 55	47 47 48 36	56 55 68 60 57	47 48 49 37 45	63 55 51 62 60	46 46 38 46 38	56 52 61 61 57	49 49 50 42 48	54 55 57 65 59	4 4 3 5
6 7 8 9	70 77 85 83 83	38 41 39 43 54	72 77 83 84 79	32 36 33 44 43	67 76 83 81 76	34 37 37 38 40	61 72 80 76 75	42 37 42 42 40	68 77 82 80 71	37 35 42 33 33	56 69 77 71 70	45 34 38 37 51	66 74 80 81 74	33 39 38 43 42	55 61 70 67 68	44 40 39 40 40	55 63 71 67 65	45 39 39 41 43	63 71 78 78 78 77	36 40 40 41	52 62 70 69 67	43 40 35 38 40	65 74 82 80 75	34 39 40 39 40	57 67 77 73 70	47 44 43 44 46	64 72 78 79 77	4 4 3 4
11 12 13 14 15	67 62 70 69 67	44 46 36 42 48	73 61 70 69 70	36 40 34 40 31	74 73 61 68 62	35 33 42 35 47	73 67 55 65 65	37 46 41 37 44	75 70 64 64 64	35 35 48 36 44	70 62 70 69 65	35 45 44 49 38	72 63 64 67 58	40 38 46 38 43	74 60 51 52 56	40 44 42 41 37	71 61 60 60 51	46 55 44 38 45	71 72 68 75 64	40 41 41 39 44	70 66 68 64 62	52 52 43 40 49	76 69 58 68 62	41 40 37 38 34	70 67 60 66 54	43 49 44 38 46	66 65 67 53	4 4 3 4
16 17 18 19	46 42	42 46 36 .34 30	73 56 47 42 41	32 29 32 32 24	65 58 50 43 37	33 32 33 33 29	65 60 51 42 39	38 40 35 33 29	63 59 50 42 37	30 34 31 32 29	62 61 53 47 42	54 35 34 37 26	64 53 44 39 36	37 33 32 33 26	65 60 55 48 42	42 32 35 33 28	62 56 52 48 44	44 36 34 33 29	63 53 44 43	36 36 32 30	61 63 50 45 44	48 38 37 32 28	62 56 49 48 48	39 32 32 29 20	64 59 54 43 43	43 43 40 33 33	61 57 46 41 39	4 4 3 3 2 2
21	57 40	26 43 31 34 30	57	25 25 22 31 19	47 45 48 40 39	18 33 24 30 22	49 45 46 40 38	28 31 31 30 23	48. 46. 46. 39. 45.	19 33 26 32 18	46 43 47 43 37	24 35 26 28 23	47 45 46 37 38	26 33 25 29 21	48 44 45 42 40	30 32 26 30 26	46 45 50 48 40	28 28 27 32 31	48 55 54 53 41	23 38 30 31 27	48 46 49 53 40	27 34 28 33 31	52 56 52 45 41	24 29 34 23 21	50 49 49 50 39	34	52 52 51 45 33	3 3 2 2
26 27 28 29 30 31	47 48 48	30 20 17 20 20 15	35 43 48 48 59 39	23 13 14 13 10 2	41 42 48 44 36 28	16 10 11 18 14 14	40 41 49 46 30 28	19 16 18 22 15 7	35 39 46 45 31 29	19 12 15 18 16 15	45 38	21 12 17 18 13 17	36 40 47 41 36 27	20 14 17 20 25 6	41 42 50 42 36 35	18 18 15 20 16 20	39 42 48 56 42 40	27 22 20 24 19	36 34 40 47 44 42	26 21 21 20 19	38 40 45 50 43 44	29 24 21 22 20 27	36 40 48 52 42 39	17 17 18 17 19 17	41 41 49 54 43 36	31 27 25 25 19 19	33 33 42 54 39 38	2 2 2 2 2 3 1

Table 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 6—Continued.

		8	South 1	Dakoti				Colo	rado.						a i			17	Nebra	ska.								
Date.	Sionx	Falls.		ter- n.§§	Yani	kton.	Den	ver.	Wr	ay.	Alı	na.	Brid		Gra		He Spri	ngs.	Heb	ron.	Line	oln.	No. Pla	rth tte.	Oak	dale.	Ome	aha.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	54 57 69	47 50 50 50 43	51 56 61 59 48	45 44 47 44 40	54 58 73 65 56	49 51 53 44 47	70 68 68 66 66 58	52 52 45 36 46	63 59 72 70 89	51 49 41 29 51	60 56 75 71 85	55 50 50 37 55	70 65 70 75 65	50 50 48 28 49	54 65 73 66 70	53 48 57 41 50	60 54 62 77 68	44 47 41 28 48	57 57 74 69 82	55 52 57 43 53	62 60 75 69 74	53 53 53 45 51	60 56 68 69 68	50 48 40 33 48	55 54 71 63 58	49 49 50 39 46	62 59 76 65 72	53 53 55 49 50
6 7 8 9		36 38 37 40 43	54 63 62 65 65	41 35 37 37 37	51 62 67 65 67	46 41 39 44 43	61 66 75 77 76	44 38 38 41 44	62 62 69 79 82	49 32 39 32 29	57 65 63 72 79	52 41 37 34 45	63 70 75 82 80	47 30 35 29 32	52 60 63 68 73	48 44 38 39 42	60 70 72 80 78	46 34 32 30 36	56 58 61 66 74	51 48 34 37 44	74 56 62 65 73	49 43 42 42 46	59 63 68 73 77	40 35 37 36 37	49 59 61 65 67	45 40 33 40 39	72 54 61 66 69	46
11 12 13 14	75 70	50 54 47 43 43	70 65 63 55 50	37 44 40 39 41	73 60 71 65 53	46 56 48 43 48	66 72 76 80 60	42 40 41 44 34	78 76 78 86 72	41 43 32 41 22	80 77 77 77 77 70	49 62 53 40 50	70 70 71 83 63	41 40 31 30 35	73 70 74 72 62	49 50 54 40 52	69 68 67 80 62	44 36 33 32 42	73 76 77 71 68	52 56 53 39 54	69 72 70 68 75	50 61 53 45 52	70 75 70 74 53	43 45 37 34 43	69 65 70 66 52	43 55 46 37 43	73 69 70 67 74	56 62 56 43 54
6 7 8 9	60 55 57	38 42 38 32 30	58 60 50 46 45	45 34 35 32 28	58 68 50 48 48	48 42 41 34 31	61 72 61 36 32	29 39 27 26 23	62 76 58 47 41	26 31 32 33 23	64 75 65 55 53	59 34 34 36 25	59 71 48 43 40	35 26 32 22 17	58 70 58 53 53	48 36 40 36 31	58 61 48 38 39	35 31 30 29 25	59 71 63 55 53	49 37 38 40 31	57 72 64 55 53	51 42 43 41 33	60 73 48 45 46	38 33 37 29 23	54 67 49 48 48	42 33 38 32 24	56 72 60 53 50	5 4 4 4 3
11 12 13 14 15	49	28 32 34 29 28	43 40 45 40 39	27 26 27 27 27 29	47 51 52 53 44	30 33 30 36 32	49 64 55 60 46	17 32 31 32 32	45 61 63 63 46	19 26 35 35 30	50 55 67 67 56	23 24 26 42 28	48 59 63 61 47	17 33 23 25 22	50 61 62 68 48	23 38 29 40 36	45 55 57 51 35	10 32 28 28 28 26	51 63 64 71 54	27 33 29 47 36	49 61 64 71 53	30 36 32 42 37	48 59 61 62 44	22 30 28 34 31	46 55 54 55 46	23 30 24 33 35	49 59 62 71 51	31 31 43 43
26 27 28 29 30	42 43 55 47	26 22 23 27 26 24	37 43 48 53 37 34	25 18 18 22 21 15	35 40 46 52 45 45	28 24 21 30 27 25	34 28 44 51 55 50	25 22 21 28 27 26	39 36 36 36 38 46	30 27 27 26 16 19 18	40 41 41 39 49 51	33 30 31 32 29 25	36 40 43 53 54 51	24 18 14 11 15 15	38 40 49 45 50 46	32 28 26 35 33 24	28 33 33 37 48 39	23 10 11 3 19 12	40 41 43 43 43 45	34 30 33 35 35 25	42 43 49 48 47 46	33 30 28 31 36 27	36 39 40 42 55 48	25 22 23 20 20 20	35 39 44 49 49 44	25 19 15 21 26 17	42 44 48 48 46 45	3: 3: 3: 3: 3: 2:

	Nebr	raska.			Iov	wa.						Miss	ouri.							Kar	nsas.			
Date.	Valer	ntine.	Claris	nda.§§	Sible	ey.§§	Sic	ux ty.	Colu	mbia.	Kar		St. I	ouis.		ion- e.§§	Col	by.	Conc	ordia.	Sal	ina.	Тор	eka.
	Max.	Min.	Max.	Min.																				
1	53 52 65 66 56	47 47 46 35 46	60 68 79 69 73	55 52 53 46 46	52 58 59 50	48 47 49 43	54 59 73 62 61	51 51 55 46 48	84 68 88 68 69	65 59 59 55 50	82 64 84 71 78	59 57 64 58 55	75 74 88 74 70	67 62 63 59 54	74 76 84 66 71	52 54 56 49 45	.70 67 73 68 68	52 47 47 35 48	65 70 76 69 86	55 53 55 49 55	74 69 78 72 89	60 55 63 45 48	79 68 82 70 84	57 56 56 53 55
6 7 8 9 10	66 74 77	38 34 40 39 41	68 52 63 61 72	48 45 40 38 39	46 55 61 61 66	42 34 32 33 39	62 54 62 61 66	46 40 33 42 46	83 52 56 61 66	53 48 47 48 49	79 52 54 64 67	52 48 46 50 46	86 59 55 62 67	59 49 48 53 55	80 50 64 62 66	52 46 36 40 44	70 63 67 76 79	50 35 32 32 32 35	78 58 61 68 76	52 43 35 39 47	80 60 62 78 80	51 50 27 35 49	77 53 59 65 71	51 48 48 46 46
11	68 73 67 73 52	39 42 37 36 45	70 64 75 69 79	48 50 53 46 55	71 60 67 65 59	43 45 50 43 43	72 62 70 64 59	50 57 52 44 51	72 75 72 70 84	50 59 58 55 56	76 72 72 68 81	51 62 60 58 60	73 72 69 75 82	52 56 56 58 58	72 76 72 70 80	43 46 50 54 48	75 65 78 85 72	40 45 42 41 38	83 78 71 73 70	52 54 55 49 50	85 82 80 82 78	57 56 57 48 49	80 79 75 71 79	50 61 59 53 53
16	72 46 43	36 36 34 32 26	56 72 70 50 52	51 52 43 36 32	52 64 49 49 49	42 37 38 31 32	54 70 54 50 49	49 44 43 37 32	71 68 73 55 55	52 47 45 46 44	61 69 72 58 53	47 49 50 45 43	74 65 71 64 53	56 54 51 53 48	64 66 70 66 55	54 48 52 56 40	62 76 64 52 49	38 34 35 23 22	62 73 67 56 53	48 40 42 39 32	70 75 74 68 55	47 39 40 34 30	60 72 77 58 52	47 48 49 43 30
21 22 23 24 25	48 54 35 52 36	22 34 30 33 29	51 61 61 69 55	29 28 28 27 41	43 43 48 48 48	28 28 28 32 27	46 51 51 59 47	31 33 31 39 33	47 60 57 65 62	40 30 30 42 43	50 63 62 69 56	40 38 38 46 43	49 56 55 59 67	37 37 41 42 46	48 56 55 62 64	32 31 30 32 40	64 70 69 60 72	24 25 25 30 31	52 65 65 72 53	31 35 31 47 37	59 68 58 78 56	32 30 27 52 47	50 64 65 71 56	38 34 36 47 41
26	33 35 42 50 41 44	21 20 17 20 20 20	46 47 50 48 51 47	30 29 26 26 31 26	34 41 44 51 44 39	28 19 19 20 19 18	35 42 46 54 48 43	32 25 23 29 31 25	59 42 45 46 49 51	37 31 34 38 43 33	50 41 42 44 47 50	36 32 35 40 41 37	60 42 47 50 56 51	42 35 38 43 46 39	45 48 50 52 46 44	28 30 32 30 34 32	45 38 36 41 58 55	31 31 26 30 23 20	42 39 42 42 44 50	36 34 36 38 34 28	52 43 48 43 48 51	38 35 34 33 37 27	49 41 43 44 47 49	38 38 40 38 38
Mns	55. 6	33. 5	61.5	40.3	52. 44	34.6*	55.8	40.3	63.6	46.6	62.9	47.9	64.6	50. 2	63.0	42.5	64.1	34.4	63. 2	42.9	67.6	43.3	64. 2	45. 8

^{*,} b, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT No. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

Unseasonably warm weather prevailed throughout the district during the first 15 days, but from the 16th to the close of the month temperature conditions were moderate, except that a cool wave overspread the district from the 21st to 23d, giving temperatures below freezing as far south as north-central Louisiana. - Precipitation was generally in the form of rain, except in the northwestern portion, where there was some snow.

TEMPERATURE.

Mean temperatures were above the normal generally over the eastern and southern and below over the north-western portion of the district. The greatest excess in mean temperature, 5°, occurred in southern Louisiana, and the greatest deficiency, 3.1°, in the mountainous portions of the Colorado area. The warmest weather occurred generally on the 1st or 2d, except in the Kansas and New Mexico areas, where the highest temperatures occurred on the 14th. Maximum temperatures were above 90° in all parts of the district, and above 100° in the southeast respectively. portion. The highest temperature recorded was 103° at Liberty Hill, La. The lowest temperatures occurred generally from the 21st to 23d. Monthly minimum temperatures were generally below 30° over the western portion of the district, and below 40° over the remainder, except that the lowest readings in southern Louisiana ranged generally from 40° to 50°. The lowest temperature recorded was -10° at Westcliffe, Colo.

Monthly mean temperatures and departures from the normal for the various States and departures from the normal for the various States and parts of States are reported as follows: Colorado area, 44.3°, -3.0°; New Mexico area, 51.5°, -1.6°; Texas area, 60.8°, +3.0°; Kansas area, 56.5°, -1.2°; Oklahoma, 62.1°, +0.5°; Missouri area, 59.0°, +0.5°; Tennessee area, 62.6°, +2.6°; Arkansas, 62.7°, +0.6°; Mississippi area, 67.0°, +3.4°; Louisiana, 70.0°, +2.6°.

PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—Heavy precipitation occurred in some localities over the upper portion of this drainage area, but generally the amounts were light. Over the headwaters of the Arkansas River in Colorado, the average from 33 stations was 2.05 inches, about 0.6 inch above the normal. Very little precipitation oc-curred over those portions of the Arkansas Valley proper that lie in Kansas and Oklahoma, where the amounts from 45 stations averaged 1.41 inches, about 1 inch below the normal., The precipitation was unevenly distributed in the Cimarron Valley, where the amounts from 22 stations averaged 1.74 inches, about the normal amount. Over that portion of the Canadian Valley that lies in New Mexico the precipitation from 39 stations averaged 2.22 inches, about 1.1 inches above the normal, while over the

stretches of this valley that lie in Texas and Oklahoma the average from 27 stations was 1.50 inches, about 0.8 inch below the normal. Over the Verdigris Valley the precipitation from 10 stations averaged 0.89 inch, about 1.8 inches below the normal. The average from 18 stations in the Neosho Valley was 1.59 inches, about 1 inch below the normal. Below the Oklahoma-Arkansas line the precipitation from 14 stations in the Arkansas Valley

averaged 1.67 inches, about 0.9 inch below the normal.

Red River and tributaries.—The precipitation was generally light over this drainage area. Over those portions of the Red River Valley that lie in New Mexico, Texas, and Oklahoma the average from 42 stations was 1.58 inches, about 0.7 inch below the normal. Below the Texas-Arkansas line the precipitation from 18 stations averaged 1.82 inches, about 0.9 inch below the normal.

Mississippi River south of St. Louis and small tributaries.—Except in scattered localities the precipitation was light throughout this drainage area. In the immediate Mississippi Valley the amounts from 42 stations averaged 1.77 inches, about 0.8 inch below the normal. There was a slight excess in precipitation over the Valley of the Meramec. The average from 22 stations in the White River Valley was 2.14 inches, about 9.1 inch below the normal. Over the Yazoo Valley the average from 27 stations was 1.80 inches, about 0.2 inch above the normal. The average precipitation over the valley of the Big Black was only 0.87 inch, about 1.5 inches below the normal amount. The precipitation from 20 stations in the Orachite Valley was 1.45 inches about 0.8 inches in the Ouachita Valley was 1.45 inches, about 0.8 inch below the normal.

Louisiana coastal plain.—The precipitation was unevenly distributed over this drainage area, being heavy in several localities and light in others. The average from 34 stations was 4.19 inches, about 1.3 inches above the normal.

Monthly precipitation and departures from the normal for the various States and parts of States (in inches) are reported as follows: Colorado area, 1.98, +0.56; New Mexico area, 2.16, +0.99; Texas area, 1.65, -0.52; Kansas area, 1.18, -1.10; Oklahoma, 1.71, -0.82; Missouri area, 2.36, -0.36; Tennessee area, 1.60, -0.97; Arkansas, 1.67, -0.84; Mississippi area, 1.68, -0.40; Louisiana, 3.29, +0.69.

SNOWFALL.

There was considerable snowfall over the Colorado, New Mexico, and Kansas areas, and in the Texas Panhandle and extreme western Oklahoma, the amounts ranging from a trace on the plains to 30 to 40 inches in the elevated mountain sections. In the Colorado area snow occurred during the latter part of the month, the amounts being moderately heavy on the 20th and 27th. The greatest monthly amount was 47 inches at Hermit Lake. In the New Mexico area heavy snow occurred over the higher mountains from the 19th to 21st and 26th to 29th. Over the lower levels it melted rapidly, and the ground was generally bare at the close of the month, but owing to the receptive condition of the soil the water was mostly absorbed. In the protected gulches and timber of the higher mountains, however, snow on the ground at the close of the month ranged from 1 to 4 feet. In Oklahoma and the Texas and Kansas areas, where in some places the snowfall was quite heavy, one station in Oklahoma reported 20 inches, it disappeared rapidly, and the ground was bare at the close of the month. The average snowfall, in inches, for the various States and parts of States, derived from the records of such stations as reported snow, is as follows: Colorado area, 34 stations, 12.2; New Mexico area, 45 stations, 7.0; Texas area, 12 stations, 4.0; Kansas area, 51 stations, 0.2; Oklahoma, 7 stations, 4.7; Missouri area, 9 stations, 1.0; Arkansas, 2 stations, trace.

RIVERS.

Low stages prevailed in the Arkansas River throughout the month. There were no floods in Oklahoma, and nearly all streams were at low stages. Navigation on the lower Arkansas was practically suspended.

The White River fell steadily throughout the month, the lowest stages occurring on the 31st.

Changes in the stages of the Red River were slight, and

low stages prevailed generally.

No material changes occurred in the Ouachita River, and the stages ranged generally between 3 and 4 feet.

Below St. Louis there was a slight rise in the Mississippi River which passed into the Gulf of Mexico on the 21st, after which changes were slight.

NOTES.

Oklahoma (J. Pemberton Slaughter, section director).—The weather was favorable for cotton. A large acreage of wheat has been seeded, the soil being generally in fair condition, but over a large portion of the State there is not the usual amount of moisture in the soil.

Missouri (George Reeder, section director) .- The weather, on the whole, was favorable for outdoor occu-pations. Pastures are in good condition; apples are coloring nicely, and picking is progressing satisfactorily.

Table 1.—Climatological data for October, 1911. District No. 7, Lower Mississippi Valley.

		arie .	years.	Tem	peratur	e, in	degre	es Fal	rent	neit.	Prec	ipitation	, in in	ches.	days,	3	Sky.		direc	
Stations.	. Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Di	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	펀	Observers.
Colorado.																				
Buena Vista Calhan Canon City Colorado Springs	Chaffee	5,343 6,098	11 4 23 31		- 5.6 - 4.0 - 4.3		2 2 1	20 11	21 21 21 21	43 44 39	1.68	+ 0.66 + 0.90 + 0.20	0.50 0.54 0.42	13.0 10.5 4.0	8 6	21 22 17	5 8	9 4 6	n. 30.	C. A. Short. H. B. Rice. U. S. Weather Bureau. Colorado College.
ripple Creek	Teller	8,200 4,209	10 2 4									- 0.13	0.35 1.46	4.0 25.5	3 7	24	2	5	sw.	F. G. Willis. George A. Myers. W. H. Lauck.
airviewremont Exp. Sta arfield	CusterEl PasoChaffeeElbert	8,850	1 1 18		- 2.5		14	1 2	20	39	1.45 2.54 1.55	+ 0.98	1.55 0.50 1.01 0.60	33.0 14.9 15.0 5.0	6 9 9 5	8 21 26 16	14 4 2 4	9 6 3 11	e. w. w.	Elizabeth L. Gray. U. S. Forest Service. Lloyd N. Felton. W. Hamp.
oehne (near)	Custer. Las Animas. Prowers. Otero.	5,700	1 19 16		- 2.5 - 3.8		14 14	10 25	21 27†	52 53	6.48 1.41 0.82	+ 0.42 + 0.26	3. 25 0. 76 0. 30	47.0 6.0 3.0	8 5 5	12 21 19	14 4 6	5 6 6	sw. w. se.	W. Hamp. John E. Graham. S. W. DeBusk. Holly Sugar Co.
a Juntaake Moraineake	Prowers	10, 265 3, 592	17 21		- 1.7	66	i	- i	21	35	1.44	+ 0.16	0.45	9. 0 20. 2	5 5	15	6	10	sw.	Fred B. Mason. Clyde C. McReynolds. J. T. Lawless.
as Animasa Veta Passeadville	BentCostillaLakeElbert	9,000 10,248 5,360	43 1 15 4	34.2	- 1.7 - 3.1	93d 64 84	9 14	0 6	20 20 21	37 48	1.51 3.83 2.24 1.06	+ 0.79	0.58 1.42 0.52 0.56	22.7 12.6 3.0	6 9 4	18 12 15 19	12 10 6	8 7 6 6	w. n. s.	J. T. Lawless, F. M. Tague. Clara M. Wright. U. S. Weather Bureau. F. L. Palmer.
ladrid	Las Animas. Saguache El Paso Las Animas	10,846 7,200 8,700	8				i	4		47	2.73 0.70 0.54 2.63	+ 1.13		13.5 12.0 4.0 28.0	9 3 5 7	21 21 17 20	3 8 7 9	8 7 6 4	w. nw.	Thos. Sawers. W. L. Williams. U. S. Forest Service. James W. Ingmire.
ueblo locky Ford (near) t. Elmo alida	Otero	4,734 4,177 9,500	23 22 2 12	49.4	- 4.9	86	14	19	21	48	3.10 1.49	+ 0.39	1.85 0.35	1.2 5.0	7 7 7	16 17 23	10 3	4 5	nw. sw. w.	U. S. Weather Bureau. P. K. Blinn. Daniel Clark. M. D. L. Buell.
anta Clara	Huerfano Kiowa. Las Animas	4,065 8,000	16 9 5 15		- 3.6 - 1.5		2	1	21	40	0.90 5.35 3.26	+ 2.12		6.0 19.8 12.8	8 1 9 6	18 19 22	8	8 4		Lincoln G. Morris. Howard Gamble. G. A. Storz. Walter Dearden.
wo Buttesietorilas	BacaBaca.	4,100 10,100 3,935	7 20	41.6		63	2 11	20 10	21	53 34	0.66 1.44 0.87	+ 0.14		6.0 6.5 11.0	5		5 5 10	6 2 11	nw. e. nw.	N. G. Jones. Fred Jones. Carrie Konkel. J. C. Goff.
ayne estcliffe infield oodman Sanatorium.	El Paso. Custer. Chaffee. El Paso.	7,864 9,765 11,250	17 1 10		- 2.4			- 10 11		46	1.98 2.02 0.77	+ 0.74	0.35	17.0 5.5 7.0	8 5 5 8	11 13 19 8	13 11 7 23	7 7 5	nw. w.	Zack Jordan. John G. Payne. Dr. J. E. White.
New Mexico.	Lake	11,250	10					••••			1.08	- 0.84	0.21	4.5	8	8	23	0	nw.	George C. Wortman.
bbottlbert	Mora Union	4,700	20	58.0	0.0		2 2	21 27	21 27†		1.68	- 0.36	0.54	10.0 T.	2	21	3	7	s. w.	Agent E. P. & S. W. R. R. Andrew Knell.
uroraell Ranchlack Lake	Colfax	4,500	12 2 2 2			. 89					5.03 1.18 3.39	+ 0.36	0.36 2.00	15.0 7.0 6.5	6	18 13	16 9 10	9 4 8	nw. sw. w.	Juanita Lucero. C. M. O'Donel. Ralph T. Martinez. Agent E. P. & S. W. R. R.
abezaampanahacon	Mora.	9,000	2 2						91		0.80 1.45 4.88 2.96		0.60	3.0 14.0 11.0	6 4	13	8 5 17 6	7 13 4 7	SW. SW. W.	Do. Alfred Lucero. William French.
marron (near) ayton lovis		5, 178	6 1	58. 2		92	1+	26 27	21 20 22	45 49 36	1.01		0.57	3.0	2	24	0 7	7 4	ne.	Dr. W. W. Chilton. J. H. Barry. Agent E. P. & S. W. R. R.
uervo Pawsonlizabethtown	Colfaxdo	6, 396 8, 465	2 5	39.0		68		- 10			3.81	+ 1.34	1.53	4.5	5	8	21 2 6	9 3	nw.	Do. Mabel Carrington. David Rope.
olsom ort Union ayden. oosier Ranch	Union Mora Union Mora.	6, 399 6, 835 4, 444	51 2	47.9 46.4 54.8	- 1.5 - 4.1	81 80 90	2 2	13 16 22	21 28	51 42	2.68 3.70 2.08	+ 1.59	1.50 1.60 1.23		6	21 18 17	6 9	10 7 5	SW. SW.	M. C. Needham, J. B. Dickson, W. H. Guthman,
ohnson's Parkappusake Alice	Colfax	6,722 4,010 7,160	1 2								2.36 1.40 4.68		1.90	7.5 7.0 20.0	6 4 6		4	8	sw.	A. J. Meloche, jr. Anthony Kappus. John Campbell.
oganos Alamosykins (near)	San Miguel Roosevelt	3,851 6,789 5,000	5 6 1				2	27	22	47	1.81			3.0	5	23	3	5	sw.	John B. Reneau. Antonio Pacheco. J. G. Buchanan.
laxwell (near) lelrose liami Ranch	Curry Colfax	5,894 4,400 6,000	3 3			. 81	21	15	21		0.94 1.11 2.99		0.43	7.0 5.0 6.0	7		6 5	5 9	w.	Dan N. Jackson. Dr. E. M. Porter. Farmers Development Co. J. E. LaRue.
ills ontoya ount Dora (near) ara Visa	Mora	5,600 4,225	2 1 5	49.61		90	2	30 21 ¹ 25		48h 40	2.27 1.50 1.57 1.45		0.50	7.0 5.0 3.0 3.5	6	18	6 7 5	7 7 6	w. sw.	Agent E. P. & S. W. R. R Edward F. Grygla. George Bingle.
cateptimoalo Verde	Moradododo	7,500 6,400 5,880									2. 25	******	1.65	7.5	3	20	2 5	9	sw.	Mrs. John R. Strong. R. K. Odell. G. R. Abernathy. J. J. Heringa.
asemonteleasant Viewortales	Union	4,004	2				12	26 28	20 22	47	0.52 2.06 3.24	1 9 90	1.10	3.9 10.7			3 5	5		R. W. Boulware. Portales Irrigation Co.
aton ociadaosebudoy.	Colfax	8,200	13 7 1 2	45.9		80	231	32	19	29	1.77 1.55 3.07	+ 2.38	0.53 0.48 1.51	12.0 3.0 3.0	5	18	11 8 15	9 2 5 5 4 7	w. sw. ne.	Humphrey & Wiseman. J. Ernest Dailey. H. A. Nachtrieb. Agent E. P. & S. W. R. R.
oy (near)oi Jon olano	Quay	4,200 5,622	4 2 15	56. 6 50. 6		. 81	2	26 22 15	28 21 21	46 42 47	3.01 1.52 1.53 1.60		0.48	8.0	5	12 22 18 24	15 2 6 6	1	W.	Baum brothers. Jesse T. White. F. M. Hughes. Agent A. T. & S. F. F. R.
aylorrementinaucumcari	San Miguel	5,661 5,000 4,194	3 6	57.4		. 90		28	21	1 47	1. 44 1. 97 1. 89 2. 06		1.14 0.90 0.62	7.2 6.0	0	23	5	7 3	e. sw.	Agent A. T. & S. F. F. R. Agent E. P. & S. W. R. F. Miss Alice Blake. John F. Seaman. Miss M. L. Payne.
alley ance (near) ermejo Park Vagon Mound (near)	Collax	7.600	6 1 6 9	42.4		79		- 1 20		54	3.77		. 0.54	6.5	8	19	6 3	6	sw.	C. E. Anderson. H. W. Adams. Guy L. Barnes.

TABLE 1.—Climatological data for October, 1911. District No. 7.—Continued.

		1	Years	Tem	peratur	e, în e	degre	es Fal	arenh	seit.	Prec	ipitation	, in in	ohes.	days,		Sky.	•	direc	
Stations.	Counties.	Elevation, feet.	Length ofreond,	Mean.	Departure from	Highest.	Date.	Lowest.	1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	or mo	Number of clear days.	Number of part- ly cloudy days.	N u m ber of cloudy days.	wind D.	Observers.
Texas.	Potter	3,676	19	57.1	+ 1.0	91	1	26	28	45	0.84	- 0.87	0.34	3.1	6	18	8	5	s.	U. S. Weather Bureau.
Archer City		500	19								0.35 3.00	- 0.01	0.21 2.00	0	3 5	23	6	14	s. n.	Charles H. Thuman. V. V. Bright.
Bonham	Fannin	566	8	67.4		98	4	34	22	41	1.43		0.68	0	4	18	5	8	8.	H. M. Norman.
	Hemphill Childress,		18	60.4		94	11	30	27†	40	0.67	- 0.25	0.28	1.4 T.	5 2	15 23	12 5	3	sw. n.	Canadian Academy. W. E. Davis.
Chillicothe	Hardeman	1,406	3								0.81		0.41	0	2					A. B. Connor.
Clarendon Clarksville	Donley Red River	2,719	6	66.4	0.0	95	3	30	28 22	50	3.03		0.77	3.0	7	23	4	4	S8.	Whitfield Carhart. J. W. O'Neill.
Claude	Armstrong	3, 397	6								1.57			4.0	5					Ft. Worth & Denver City Ry
Dalhart		3,998	6	53.6		92	2	24	25	45	1.78	- 1.58		7.0	8 5	20	10	11	sw.	F. L. Kennard. E. B. Wilson.
Finley	Bowie		1								1.62		1.22	0	2	12	0	19	S.	Robert L. Smith.
Henrietta	Clay Deaf Smith	915 3,750	19	65.0	- 0.3	97	3	36	22†	48	1.34	- 0.76	0.84	0	4	15	6	10	8.	C. K. Brown. A. C. Elliott.
Memphis	Hall	2,067	6	60.4		95	13	32	9†	56	1.25		0.65	0	3	16	0			Ft. Worth & Denver City Ry
Miami Mobeetie		2,743	5 17				1	30	22	45	1.03	- 0.66	0.39	3.0	6	23	2	6	n.	J. E. Kinney. Dr. W. J. Joss.
Nazareth	Castro		5										0 40							Rev. P. A. Kaelin.
Ochiltree Pampa	Grav	3,226	3 2						****		0.98		0.40	0	5					S. J. Allen. B. E. Finley.
Panhandie	Carson	3,450	22						994		1.85 2.36	+ 0.04	0.80	0	3 6	12		15	n.	J. Sid O'Keefe. Robert A. Miller.
Paris Plemons	Hutchinson		4	57.0	- 0.1	98	2	33 26 34	22† 28 29	44 48 37	1.92	+ 0.04	0.81	3.0	8	21	2	8	n.	C. S. Solomon.
Quanah	Hardeman	1,563	6	64.4		98	3	34	29	37	1.70 3.28		0.60	0	3	19	5	20	8. 8W.	William H. Crawford. H. J. Palmer.
Ringo Crossing Romero	Hopkins		1	54.4		86	14	24	22	45	1.19		0.53	5.0	4	19	9	3	S.	R. S. Chamberlain.
Sherman	Grayson	745	18	66.0	+ 0.7	94	1†	30 26	22 27†	120 48	2.52 1.43	- 0.80	120	5.0	3 5	13 16	5	13	s. n.	R. A. Gibbs. J. W. Elliott.
Stratford Sulphur Springs	Hopkins	. 530	17					20	241	90	1. 40		0.00	3.0		10				John Neeley.
Texline	Dallam	4,694	13							40	1.25	+ 1.28	0.70 0.76	5.5 7.5	8	16	ii	4	S.	Ft. Worth & Denver City Ry Lou Mulhall.
Tulia Wichita Falls	Swisher	958	19					25	20	48			0.30	0	3	21	5 7	5	n.	R. A. Thompson.
Winfield	Titus		1								1.69		1.17	0	3	16	7	8	98.	J. C. Bostick.
Kansas.	Rice	1,684	1		10.1			930	1		1.08	1	0.74	1.5	3	17	5	9	ne.	L. B. Wait.
Anthony	Harper	. 1,329	14	59.6		95	1	29	22	45	0.96	- 1.31	0.40	T.	6	12	14	5	SW.	R. H. Beebe.
Ashland	Clark	1,951	23 18	57.6	- 0.6 - 1.7	93 90	12	24	22 21	49 36	1.25	- 0.63 - 1.68	0.83	3.0 T.	10	21 0	25	6	8. n.	C. W. Carson. O. E. Sanford.
Chanute	Neosho	940	7	59.0		90	3	29	22	37	1.96	4.00	0.37	0	8	4	15	12	n.	C. W. Brown.
Cimarron	Gray	2,700	14		- 0.5	92 93	14	22	22	47	0.82	- 0.81	0.60	5.0	5 5	17b 20	36	9b 10	w. n.	C. C. Isely, J. L. Stanley.
Columbus	Cherokee	. 898	21	58.5	- 0.4	88 91	1	30	22 22 22† 22† 22 22†	32	2.16	- 0.87	1.09	0	8	13	8	10	SW.	O. E. Skinner.
Coolidge	Hamilton Chase	3,348	14	51.5	- 1.7		14	28 29 22 28 30 22 27	221	55 42	1.60	+ 0.61	0.64	2.0	5	17	6 7	12	nw.	W. R. Padley, E. B. Greene.
Council Grove	Morris	1,234	2	55.0		84	13	30	31	37	0.64		0. 45	T.	4	9	11	11	n.	J. P. Blackledge.
Cunningham Dødge City		1,680	37	53.6	- 1.1	92h 90	14	27h	31	39 42	1.45	- 0.66 - 0.77	1.15	2.5	6	144	7.	38	n. n.	W. H. Morton. U. S. Weather Bureau.
Eldorado	Butler	1,291	9	58.0		89	2 14	25 29 25	22 22 31	38	2.77		1.85	0	6	15	11	5	S.	W. Y. Miller.
Ellinwood	Lyons	1,790	36	55.6	$-1.1 \\ -5.1$	93	14	25	31 22†	44 38	1.41	- 0.48 - 1.53	0.54	1.0	7	12	13	6 7	n. n.	Martin Musil. W. H. Boyles.
Eureka	Greenwood	1,079	15	57.7		91	1	30 25	22	42	0.82	- 1.53 - 2.23	0.40	T.	3	13	12	6	S.	W. S. Moonlight.
Fall River	Seward	925	15	39.2	+ 0.1	91	14	26	22	44	0.75	- 1.37	0.30	T.	6 2		7	5	S. S.	J. McDaniel. N. B. Swink.
Fredonia	Wilson	. 864	. 8	59.9	- 3.2	92	1	30	22	39	1.27		0.31	0	9	10	12	9 12	se.	B. W. Holmes. B. F. Stocks,
Gargen City Great Bend	Finney Barton	1,850	22	32.4	- 3.2	86	5	24	30	49	1.39	+ 0.46	0.70	4.0	5	18	1	12	n.	I. Pritchard.
Greensburg	Kiowa	2.235	23					26	31	47	1.58	- 1.86	1.10	6.0 T.	7	23	17	8 7	nw. ne.	C. C. Raymond. W. H. Lawyer.
Grenola Hess	ElkGray	2,700	5	P 4 0	- 0.4	91	13	21	21	46	1.10	- 1.80	0.80	4.0	3	10	19	2	se.	Fred Mallonee.
Howard	Elk	1,112	7	54. 4		97	14	19	22	56	0.59	******	0.21	T. 5.5	5	12	7	15	n. s.	J. W. Eby. E. M. Anderson.
Hugoton Hutchinson	Reno	. 1,535	21	57.1	- 1.7	93	14	27	22	44	0.93	- 1.66	0.79	3.0	4	17	6	8	S.	E. S. Webster.
Independence	Montgomery	984	37	61.0	+ 0.8	94 88	2	26	22 22	43 35	0.80	- 2.14 - 0.04	0.25	T.	9	11 6	12 14	8	s. ne.	F. L. Kenoyer. U. S. Weather Bureau.
irene	Hamilton	3,440	1	51.2		93	14	30 22 23 27	31	55	0.97		0.30	2.5	5	16	6	9	ne.	N. M. Herbig.
Jetmore Kingman	Hodgeman	2.268	10	54.4		92	14 14	23	31 22	50 42	0.58 1.62	- 0.94	0.30	1.0 T.	5	10	14	6	ne.	James Aiken. B. B. Anawalt.
La Crosse	Rush	2,061	9	55.2		96	14	20 21	20	51	0.20		0.20	1.0	1	18	7	6	nw.	Rodney Torrey.
Lakin Larned	Kearney		21 26	50.6	- 4.4	87 93	14	25	22† 31	49 45	1. 21 0. 57	$+0.28 \\ -0.92$	0.45	3.8	5	14	10	7 6	ne. n.	C. H. Longstreth. H. H. Wolcott.
Lebo	Coffey	1,138	25	55.9	- 1.4	88	1	30	31	36	0.54	- 2.18	0.35	0.5	3	7	15	9	S.	J. J. Bowman.
Le RoyLiberal	Seward	2,843	2 4	54.4		90	14	25	27†	44	0.82 2.50		1.10	6.0	8	10 19	0	21 12	n. ne.	F. W. Schmitt. Dr. R. T. Nichols.
Macksville	Stafford	2,032	22	55.6	- 0.7	93	14	25	31	44	1.73	- 0.46	0.85	4.5	5	11	10	10	ne.	Mrs. Nelia Poling.
McPherson Madison		1,495	22 10	57.2	- 1.4	92 89	14	25 27 22 27 27	22 22	43	2.07	- 0.65 - 1.44	1.03	3.0 T.	6	17	7 20	7	ne. se.	Ed. F. Haberlein. C. A. David.
Marion	Marion	1.310	18	57.0	- 1.9	90	1+	27	31 22	42	0.91	- 1.37	0.76	4.0	5	9	17	5	S.	Jerry Forney.
Medicine Lodge Medora	Barber	1,259	18		- 1.2	95	14	24	22	48	0.80	- 1.35	0.67	T.	3	19	8	4	S.	S. P. Garrison. M. L. Rickenbrode.
Mount Hope	Sedgwick	1.410	14								0.72	- 1.48	0.64	3.0	2	20	6	5	n.	H. N. Renfrew.
Neosho Rapids Ness City	Ness	. 2,260	18								0.63	- 0.34	0.30	1.0 T.	5	6	0	25	nw.	W. H. McMullin. J. K. Barnd.
Newton	Harvey	. 1,454	14		- 1.3 - 0.7	92	14	29	22	43	1.13	- 1.84	0.73	T.	6	16	11	4	ne.	H. A. Brush.
Norwich Oswego	Labette	. 899	15	59.3	- 0.7 - 1.0	92 90	14	29 30	22 22	42 37	1.34 2.28	- 1.01 - 0.76	1.01	T.	6	12	16	3 9	ne. sw.	N. I. Farris. Jas. M. Currigan.
Plains	Meade	2,766	1	55. 2		90	14	30 27 28 25 25 29 26	28† 22	45	1.86		0.96	3.0	4	19	5	7		E. J. Henning.
Pratt	Pratt	. 1,950	16	58 3	- 0.3	94 92	14	28 25	271	54 46	2.37 0.87	- 0.00	0.71	6.0	5 4			****		A. J. Van Vranken. M. J. Allen.
Rome	Sumner	. 1,218	25	60.4	+ 1.2	95	1+	25	27† 22 22 22 22 22d	47	1.04	- 1.41	0.66	T.	5	15	8	8	n.	D. M. Adams.
oronto	Chautauqua Woodson		26 14	59.5	-0.3 + 0.2	92 92	1	29	22	40	0.74	- 1.84 - 1.54	0. 25	T.	8 5	16 13	9	6 14	n. s.	A. Y. Buckles. M. A. Webb.
Tlysses	Grant	. 3,027	20	51, 6d	- 5.6	92d	14	21	22d	50	0.90	+ 0.07	0.40	6.0	3	19	2	10	nw.	M. A. Webb. T. W. Marshall.
Vainut Vellington	Crawford Sumner	1,225	9 15	60.0	+ 1.9	90 97	1	21 30 28 30 28 25	22 22 22 22 22 22† 22†	32 45 37	2.48 0.48	- 2.29	0.98 0.18	T.	5	16 16	6	9	ne. s.	R. C. Harlan. E. O. G. Kelly.
Wichita	Sedgwick	. 1,377	24 17	01.2	- 1.0	89 91	14	30	22	37 39 52	0.94	- 1.36	0.73	T.	5 2 5	11 23	14 2	6 6	ne.	U. S. Weather Bureau. M. B. Light.
Winfield	Cowley	. 1,124			- 0.4		1	90				- 1.87	0.31	0		1979	+3		8.	

TABLE 1.—Climatological data for October, 1911. District No. 7.—Continued.

			l, yes	Tem	peratur	e, m	regre	es rai			rie	ipitation	1	icnes.	r days,		Sky		direc	
Stations.	Counties.	Elevation, feet.	Length of record, yes	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	-	Greatest daily range.	Total.	Departure from	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or me	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Oklahoma.		1,001	3	63.9		93	1†	34	22	35	1.84		0.50	0	6	21	5	5	8.	R. J. Brooks.
pacherapaho	Caddo	1,255	6 2 17	61. 2 63. 0 62. 7		99 96 98	3	34 30 30 26 35	22 26† 22 22 22	45 44 50	1.35 1.44 2.18		0.50 0.63 0.77	0	5 8	18 24 27	4	11 3 3	sw. ne. s.	L. W. Sandefur. S. A. Stach. J. C. Brower.
rdmorernett.	Carter	1,575 872 2,136	10		+ 1.3 + 0.7	95	3† 3†	35	22	38	1. 10	+ 0.03 - 2.25	0.38	0	5	20	3	8	S.	H. T. Nisbett. C. H. Holmes.
artlesville	Washington	687	3 15	61.8 56.9		97	2	30	22 22 22	41 47 46	0. 28 1. 18	- 0.10	0.19	4.3	2 5	16	10	5	s. nw.	Dr. A. P. Owens.
eaverlackburn	Pawnee	800	10 5	63.0	- 1.2 + 1.4	91 96	2 2 2	30 25 26 29	22	46 44°	1.15	- 0.10 - 2.66	0.50	0 0	5 7 4	22 23 23	1 30	7 2e	8.	W. C. Frazer. M. M. Rhodes. Mrs. Frank Rush.
lvin	Hughes	713	6 10	61.4		91			90		2.04	- 0.34	0.64	0	6	19	0 3	12 12	s. n.	Thomas Purcell. Chas. L. Kern.
andlerattanooga	Comanche	1.150	5 10	64.9	- 0.3	94 97	1 4	31	22 22†	41 47	0.63	- 0.01	0.33	0	3	20	8	3	n.	Squire Humble. J. C. Good.
ickashaoud Chief	Washita	1.400	9	64.3		97	3	31	22 22	44	1. 25	1 00	0.63	0	3	20 17	7	4 9	8.	J. P. Stutzman.
dorado	Jackson	1,456	4	64. 4 65. 2	+ 1.1	99 98	4	33 34	22	42a	2.03 1.13	- 1.96	0.65	0	3 7 3 3	19	9	3	n. se.	Nelson Houk. T. W. Lanham. R. J. Carlile.
k City	Canadian	1,400	20		******	90					0. 15		0.08	T.		16	10	5	8.	Rose E. Walker. Uri B. Worcester.
ididk	Beckham	2,058	10	58.7	+ 0.2	95 87	1 2	31 30 31	22 21 22	45 42 37	1.90 2.16	- 0.76	1. 25 0. 80	0	3 4	24 20	6	3 5	n. n.	A. W. Hanes.
ort Gibson	Muskogee	839 556	11 6	61.4		93					2.70 2.82	- 0.32	1.05 0.93	0	9	10	14	7 12	n.	C. W. Prier. John T. Welsh.
ederickodwell	Texas	3,300	5			97	1	34	22	41	1.11		0.50	2.7	8	21 19	7	3 8	se. s.	B. B. Bradley. S. W. Black.
uthrieuymon	Texas	3, 133	18 2 7	63. 4	+ 0.4	97	1	28	22	44	2.58	- 0.13	2.00	0	3	22	0	9	8.	S. E. Snyder. A. L. Mordt.
arringtonartshorne	Roger Mills	2,200 700	12																	T. Compton. John McHugh.
ealdtonelena	Carter	900 1,396	17		+ 0.6	95 96	1	28 28	22 22	47 38	0.61	- 2.19	0. 26 0. 30	0	4	19	10 10	6	n. n.	C. H. Heald. R. E. Ellis.
ennessey	Kingfisher	1,166	16		- 1.0	99 96	3	28 28 32 33 32		41 0	2.77	+ 0.33	2. 25 0. 65	0	5	20	24 5	3	s. ne.	Mrs. M. C. Parks. Leland Turnbull.
oldenville	Hughes	900	10	62.3	+ 0.4	92 95	1+	32	22 22 30	40 38 46 42	1. 23	- 1.48	0.35	3.0	7	18 16	8	6 5 13	8. n.	Eula L. Rutherford. H. N. Kelly.
irleyabel	Cimarron	3,038 4,200 474	5 3 3	52.0		89	2 2	25 21	29	42	2.49 2.75		0.80	20.0	5	10	15	6	sw.	Dr. C. W. Meyers. M. L. Henderson.
ferson	Grant	1,062	17 10	59. 6 53. 2	+ 0.4	95 87	2	30 24	22†	43 47b	0.69 2.03	- 1.80 + 1.21	0.35 0.42	0.9	5 7	14 18 ^b	12 3b	5 8b	8.	T. E. Beck. Wm. M. Guy.
ingfisher	Kingfisher	1,046	14 15	63. 7 65. 4	+ 0.7	96 95	1†	30 35	22 22	44 39	1.73	- 1.08 - 1.16	1.09	0	6 5	16 20	13	2 7	s. n.	J. C. Cross. Wm. Noble.
cAlestercComb	Pottawattomie	1,200	17														2			J. E. McNair.
angumarlow	Stephens	1.292	18 10	65. 6	+ 2.8	100	14	35	22†	50	2.01	+ 0.09	0. 67	0	5	23		6	80.	F. D. Dodson. Wm. B. Anthony.
eeker	Lincoln	1,030	17	62.7	+ 1.5	95	1	31	22	46	0.66	- 2.25 - 1.22	0. 45	0	2	21	4	6	8.	G. C. Gray. Dr. J. H. Baugh.
uskogeeutual	Woodward	614	12 3 5	60.0	- 0.3	92 96	1	31 28	221	40	2. 04 0. 72	- 1.22	0.58	0	5 2	16 23	3	12	n. s.	J. Harry Randall. Thos. Martin.
oolaowkirk	Caddo	1.500	13	62.8	0.0	96 95	3	33	22 22†	45 47 41	0.95	- 1.33	0.46	0	3 4	21 11	7 13	3 7	8.	R. N. Schooling. P. H. Albright & Co.
orman	Cleveland Dewey	1.854	16	62.6 61.0	- 0.3	94 95 97	1 3	29 24	22 22	46	1.84	- 1.30	0.96 0.56	0	5	13 19	15	3 5	8.	S. E. Boyd. Dr. F. P. Osborn.
keeneklahoma	Blaine	1.194	7 20	62. 2	St. I was	97 93	1	32 34	31 22	43 34	1.08	- 0.52	0.45	0	6	24 10	16	3 5	ne. s.	Dr. L. H. Murdoch. U. S. Weather Burea
cmulgee	Okmulgee	752	7	62. 2	+ 0.4 + 3.5	93 94 95 95 95	1	31 28 33 30 29 24 32 34 33 29 30 33 31	21 22 22 23 23 23 23 23 23 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25	43 34 38 43 41 42	1.13		0.50	0	5	15 17	3 12	13 2	n. s.	J. L. Maynard. A. M. Foss.
whuska	Osage	918	11 12	64.2	+ 3.5 + 1.2	95	2 2	30	221	41 42	2.08	- 1.12 - 2.25 - 2.07	1.52	0	5	16 14	7 12	8 5	n. s.	R. C. Block. G. C. Wollard.
e & Fox Agency	JohnstonLincoln	796	8	63. 6	+ 1.2	95 92	4	31	22	37 35	2. 19	- 1.61	0.84	0	4 5	22 18	7 6	7	S. S.	R. G. Guptill. M. R. Gayle.
awneeyder	Pottawatomie	1,041 1,356	10	61.6 65.2	- 0.3	93	3		22 22 22 22 22 22	40	1.93	- 0.85	1.45	0	5	10 24	11	10	se. s.	Mrs. Kate Chatman. Dr. W. C. Woodard.
llwater	Payne	880 700	18 22 7	60. 9	0.0	97 95 94 92	1	32 33 29 31 32	22	41 40 36	1.47	- 1.35 - 1.27	0.72	0	3 5 8	17 15	4 3 10	11 6	nw. n.	A. R. Evans. Dr. H. M. Hutchinso
ılsanita	Craig	698 588	7	61. 2		92	1†	32	22†	40	2 18	1.007	0.79	0	5 3	15 16d	0 9d	16	SW.	W. C. Chamberlain. S. L. Hatfield.
agoneraukomis	WagonerGarfield	1,258	14		+ 1.9	101	2	33	22	42	3.76	+ 0.67 + 1.61	2.80	0	6	19 23	9	2 ^d 3 2 5	ne.	R. C. Shades. B. A. Swindler.
aurikaeatherford	Jefferson	988 1,639	10	65. 2 63. 0	- 0.9 + 0.7	96	1 1 1 3	31	22	42 44 47	0. 46 2. 28	+ 0.20 + 2.11	1.35	0	3	20	6	5	s. sw.	M. D. Reed.
ebbers Fallshiteagle	Muskogee Kay Woodward	479 945	12 7 8	61.4	+ 0.7	97 96 94 94 97	11	33 34 31 28 32 27	22 22 22 22 22 21 31	38 40 48	0.70	+ 211	3. 10 0. 26	0	4	3 18	21 5	7 8	e. se.	B. D. Boulineau. J. M. Dankwordt.
Missouri.	Woodward	1,893	8	59. 5		97	1	27	31	48	0.82	*******	0.30	2.0	4	22	6	3	nw.	R. A. Boyle.
lle	Maries Shannon	1 200	20 19	56.1b	- 3.7 + 1.5	86 90	6 3	31	22 22† 24†	33 30	1.98 2.26	- 0.38 - 0.08	1.00	0	4 5	1h 16	12b 7	10h 8	n.h n.d	A. J. Woffard.
rdwell	Demisset		1 21	60.7		91 96	2	33	24+	39 40	0.30	- 1.20	0.30	0	1	18	7	6	8. e.	V. H. Kirkendall. E. M. Perry. H. E. Averill.
ssville	Pemiscot		1	58.4	+ 4.1	89 92	2 2 2 2 2	31 32 33 36 26 25 31	22 22 22 25 25 24	41	1.68		0.82	0	5 6	16 22°	6 0a	9 84	nw.	H F Dean
anniphan	Ripley	440	13	59.6		91	2	31	25†	41 37 34	1.69	- 0.96	0.88	0	3	13ª 12	74	10a	SW.a	W. W. Martin.
noodland	Dent	900	9			88 88	3	31 26	24	43	3.75 2.80		1.39 0.90	T. 0	8	13	7	12 7	ne. 8.	A. C. Leech. F. M. Adams.
eenville	Wayne	1.000	3	61.4		90	2	32	22	32	3.27		0.82	0	8	19	0	12	80.	F. M. Adams. A. G. Templeton. W. P. Chapman. W. H. Delano.
onton	Iron	925 458		57.1 60.0	+ 1.2 + 3.1	91	2 2 2† 14	25 30	24	41 42	2.40 1.75	- 0.27 - 1.20	0.80 0.48	T. 0.5	6	3 14 12	5	19 12	n. n.	L. M. Bean.
plinshkonong	Jasper. Oregon.	925 458 979 911	34 21 32 12 31 20 13 35 29 18 20 22 31 22 31 23 14 24 25 26 27 28 28 28 28 28 28 28 28 28 28 28 28 28	62.6 58.0	- 1.7	91 93 84 89 90 89 94 91	14	32 25 30 31 34 31 29 30 29 29	22 24 24 23 22 22 24 22 22 22 22 22 22 22 22 22 22	41 42 39 28 33 37 30 35 36	2.54 1.74	- 1.20 - 0.50 - 0.57 + 0.49 - 0.14 + 0.33 - 1.89 - 1.33 - 2.39 + 1.34 + 0.63 + 1.52 + 0.24	1.50 0.62 1.10	0	7	10	8	19 13	sw. n.	Miss Ruth Smith. J. W. Hitt.
mar arble Hill	Barton	964	31	59.5 58.1	- 1.7 + 0.8 + 0.5 + 0.7	89	3 2 3	31	22 24	33	3.50 2.27	+ 0.49	1.10	4.0	7 5	13 14	4	14	g. n.	E. H. Adams. A. F. Hendricks.
ountain Grove	Wright	964 420 1, 490 1, 480 1, 023 285 798 1, 246 1, 139	13	58.2 59.0	+ 0.7	89	3 2 2 2	30	22	30	2.85	+ 0.33	0.81 1.35 0.79	4.0	5	16 12	13 5	10 10	nw.	Mo. Fruit Exp. 5 A. J. R. White & Sone
osho	Newton. New Madrid	1,023	29	60.4	- 0.4 + 1.2	91	2	29	22	36	1.84	- 1.83	0.58	0	8	17 17	9 2 0	12 14	sw.	W. O. Buck. Miss Josie Smith.
w Madridkfield	Franklin	798	20	57.2	- 1.6	89	31	33	22	30	0.95 3.87	+ 1.34	0.58 0.44 1.73 1.32 1.56 0.82 0.90		10	6	12	13	n.	E. E. Steines.
den illa ringfield selville.	Howell	1, 246	31	58.8 57.4	- 1.6 - 0.1 + 3.5 + 0.3	89 90 87 88 88	20000	33 32 30 33 33	22 22 22 25	30 32 32 30 48	3.07 3.91 3.04 2.85	+0.63 + 1.52	1.56	T. T.	12	17°	4 7	11	ne.	J. D. Evans. Prof. P. J. Wilki
ingfield	Greene	1,350	23	57.6	+ 0.3	88	3	33	22	30	3.04	+ 0.24	0.82	0.1	9	12		12	sw.i	U. S. Weather Burral Edwin Pumphres

TABLE 1.—Climatological data for October, 1911. District No. 7.—Continued.

			years	Tem	perature	, in d	legree	s Fah	renh	eit.	Pre	ipitation	, in in		ny days, more.		Sky.	-	direc-	
Stations.	Counties.	Elevation, feet	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Kentucky.																			100	Law Lab
landvilleynnville					+ 3.0	90	2†	36	22	31	0.78	-1.95	0.17	0	8	13	4	14	sw.	E. W. Horr.
Tennessee.									3	18				-						
rlington olivar rrownsville ovington yersburg ackson enton emphs tilian renton nion City	Hardeman Haywood Tipton Dyer. Madison. Obion. Shelby Gibson. do	450 361 311 310 450 325 409 440	29 24 26 24 28 18 9 40 28 28 13	61.5 63.8 62.0 62.2 64.1 63.0 64.0	+ 1.5 + 2.5 + 3.0	92 92 91 91 90 98 94 89 91 93	3 2 2† 3 2† 2 2† 3 2 2† 2 2 2 2	32 32 35 35 36 33 32 37 35 30 31	24† 24 24† 24 28† 24 28 28 24 23† 24	36 35 32 33 40 39 26 35	2. 41 3. 40 2. 21 0. 36		0.50 0.97 0.35 0.50 1.10 2.30 1.25 0.22 2.10 0.37 0.70	0 0 0 0 0 0 0 0 0 0 0 0	3 4 4 4 5 3 8 6 6 3 3	18 18 19 21 19 13 16 16 14 19 14	4 2 6 1 3 9 3 4 2 2 13	9 11 6 9 9 9 12 11 15 10 4	s. n. n. se. nw. n. n. sw.	A. T. B. Etheridge. Miss M. A. Smith. Miss H. N. Moses. James S. Ruffin. Miss M. A. Sinclair. Shelby A. Robert. George S. Martin. U. S. Weather Bureau. Orlando F. Cantwell. F. L. Dennison. J. B. Kimzey.
Arkansas.	Lawrence		7	63.0		90	2	32	26	38	0.65		0.55	0	2	16	12	3		McCullough & Guelck.
mity rkadelphia (near) rkansas City	do	250	4	64.6	+ 1.6	95 93	4 2	32 35	22 22	41 34	1.00		0.50	0	2 3	25	2	4	sw.	J. W. Campbell. J. A. Ross. W. C. Blundell.
atesvilleee Branch	Independence	271	28 6 19		+ 0.6	90	2	32	22	44	1.74		1.50 0.76 1.40	0 0	8 4		9	11		Lelia I. Teter. J. E. Scanlan.
Senton	Saline	283	6	62.0 59.0	+ 1.0	91 89	2 2† 2 2	31 30	26 22 22	43	0.48 1.98	- 0.83	0.48	0	8	13 13	8 8 7	10	ne. s.	P. B. Jackson. U. S. Weather Bureau.
BergmanBlack RockBrinkley	Boone Lawrence	1,324 259	15	55.5		88		25		39	2.23 1.66	+ 0.04	0.91	0	6				nw.	John T. Maxey. J. S. Howe.
alico Rockamden	Izard	226 361 158	7		+ 0.9	92	21	33		45	1.63 1.55 1.92		0.74 0.70 0.59	0 0	5 7					H. L. D. Whitson. W. H. Stoner. R. H. Quarterman
enterpointlarendon	Howard	470	11	66.4	+ 2.6 + 1.5	94	4	33	22 22	39	2.17	- 0.44 - 0.76	1.67	0	2 7	10	12		sw.	J. M. Huddleston.
onway	Faulkner	309	28	61.6	+ 0.5	89	1†	35	25	32	1.80	- 0.37	0.77	0	8	16	10	5	е.	G. H. Burr. Jacob Brebst.
ardanelleodd City	. Yell	330	25	62.2	- 0.7	92 91	2	34 33	22	39	2.47	+ 0.17 + 1.23	0.70	0						. A. Bernard.
utton	. Madison	265	9 7	58.4		. 90	2	25	22 22	40	2.17		1.12	0	3	1	3	15		. J. M. Ricketts.
Ingland	Lonoke		. 5	64.2			2 2	34	22	37	1.06		0.64	0	5		14		sw.	J. C. Chenault. George W. Nichoalds.
ayetteville	Washington	1,451	22	61.8	+ 1.4		21	35 34 32 31 33 35	31 22	35 42	2.88			0	4	11	14	8	sw.	Univ. of Arkansas. A. Tredick.
ort Smith	Sebastian		29	62.7	+ 1.0		2	35	22	34	1.23	- 1.60		0	7	14	4	13	e.	U. S. Weather Bureau. B. C. Logan.
lardy	Sharp	643 182	13 26	64.0	- 0.6 + 1.7	92 93	2	34 35	25		1.72	- 0.69	1.02	T.	6	11	5	15	sw.	C. A. Caywood. B. F. Modisett.
Iot Springs Iuttig	Garland	600 85	5	66.1		97		34	23	40	0.72		0.50		5			6		. Hot Spr'gs Water Co. C. A. Berry.
onesborounction	Craighead Union	345	. 18	66.2	+ 2.7	92		31	25	35	0.59		0.52	0	2		2	6	n. n.	J. A. Lowderback.
ake Farm	. Lafavette	262	8	63.5 65.4		95	4	34	25 22	45 39	1.05		. 0.42	0	3	14	9 8	8 7	n.	
Attle Rockutherville	. Johnson	775	14	60.8	- 0.9	89 90	3 2	37 32	28 22	29 35	1.81	- 1.38	1.08	0	5	15 13	11	10		W. R. Hentschel.
falvernfammoth Spring	. Fulton	512	7	58.8	- 0.3	92		33	22 25	35 38	1.88		. 0.87	0	6	13	14	4		. F. Wallick.
farked Tree	. Polk	1,100	25	63.0	+ 0.6	91	4	31	22	30	2.07		0.94	0	3					. R. R. St. John.
zark	. Franklin	377	20	61.2				36					0.70							Chas. Sprigg. R. M. Adams.
ocahontas	. Randolph		. 19	65. 0 63. 2	+ 3.5	92	3	36	25	36 41	2.64	- 0.23	0.80	0	6		7	10		J. M. Hudson. Benedictine Sisters.
ondortlandortlandorescott	. Ashley	122	2					27					1.12				17	10		A. F. Stevens. T. A. Corson. A. M. Elisworth.
Rogers	. Benton	1,385	20	64. 9		96 88		32 32	22 22	36	2.24	- 0.36	0.84		5 7		7	11	8.	Carl A. Stark. G. Field.
tuttgartubiaco	. Arkansas	495	24			91 92	31	35 36	21	1 38	0.85	-1.97		0	4 5				n.	H. A. Buerkle. New Subiaco Abbey.
wain 'exarkana	. Newton	2,300		. 57.8	+ 1.2	. 82	2 2 3	31 36	22 22 22 23	37 28 32	1. 25 3. 28 1. 35	- 1.70 - 1.16	. 1.76	T.	11	9	8		100	George Paxton. D. E. Moore.
Varren	. Bradley	304	16	65.6	+ 1.4		3		23	40	0.78	- 2.86		0	3 3					W. J. Savage. John E. Payton.
Viggs Vynne	. Garland		. 18	62.8				29 33	22 28	44 + 35	1.09	- 0.86	0.47	0	5	13	13	5		S. D. Jester. John Seals.
Mississippi.		-		00.0		1	1	00	-	1	1.0.					-				
Inguilla		107				. 93	31	33	23	37	0.80		. 0.60	0	2	18	6		ne.	E. W. Cook.
lustin	. Panola	230	24	66.1	+ 1.6		3 2 3	30	23 23	42 † 43	0.99	- 0.11	1.12		6	20 21	6 2	8	n.	H. J. Irvine. J. M. Cox.
Syhalia	Marshall	390	21	68.9					23		1.06	- 1.10	0.78	0	2 4 6 2 7	15 11	10	6 3	n. ne.	Tallahatchie Dr'ge Cor Dr. G. W. Smith-Vani
harleston	. Coahoma	177	4			94	3	34	23	39	- 2.20 1.62		. 1.35	0	8	18	0	13	n.	M. B. Burke. A. C. Tuttle.
Teveland	. Yalobusha	241	2							: :::	2.05		1.60	0	3 5 8	22 16	7		sw.	W. W. Boone. Tallahatchie Dr'ge Con
renshaw	. Panola	187	2		+ 3.7	93	2	35	23	36	. 0.75		. 0.40	0	8	18	8	11 5	ne.	M. A. Candler. Tallahatchie Dr'ge Con
DenmarkDuck Hill	Lafayette Montgomery		. 12	67.2	+ 5.0	100		32	23	42	3. 45 2. 93	+ 1.19	1.33	0	6		13	b 1	sw.	Do. W. H. Eskridge.
dwards	Hinds	222 270	10	69.1	+ 4.4	98	6	32 33 31	23 23 23 23 23 23	39 45	0.85	- 1.59 - 1.81	0.30	0	5 4	14	14	3	n. nw.	E. F. Farr. T. L. Darden.
Preenville	Washington	126 140	24 11	66.7	+ 2.5	94	2	36 35	23	37	2.68	+ 0.65	2.37	0	6	18	111	10	ne.	F. L. Harbison. J. H. Stephen.
renada	Grenada	124	2		+ 2.4						. 2.42		. 1.53	0	5	25 15	3	6 3 5	n. n.	Tallahatchie Dr'ge Con W. F. Wood,

TABLE 1.—Climatological data for October, 1911. District No. 7—Continued.

			year	Tem	peratur	e, in e	degre	es Fah	rent	neit.	Pre	cipitation	ı, in in	ches.	d a ya		Sky		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.		Observers
Mississippi—Contd.				90.1 12.1									1	. 0						
lickory Flatlolly Springs	Benton	600	24	63.4	+ 1.7	89	2†	38	221	28	3.21 2.89	+ 0.82	1.50	0 0	7 8	16 15	12 4 6	3 12	n. ne.	Tallahatchie Dr'ge Co. L. B. Mosby.
oily Springsosciuskoake Cormorant	Attala De Soto	200	21 2 2		+ 5.1	96	4†	31	23	42	1.01 0.47	- 1.20	0.89	0	4 4 2	19 16	15	6	e. ne.	E. L. Lucas. Tallahatchie Dr'ge Con
alaalone	Coahoma	1	2 2 2								0. 27 1. 76		0.18	0	6	15	11	5		
arksatchez	Quitman	163	23	60.0	+ 2.0	94	5†	35	231	42	1.76	- 1.89	1.01	0	5	ii	0.	20	ne.	Do.
w Albany	Union	308	2								3.02	******	1.62	0	5	14	15	2 6	n.	F. L. Garrity. Tallahatchie Dr'ge Co.
ntotoert Gibson	Claiborne	116	22 23	67.4	+2.4 + 3.2	92 96	2† 3† 2†	35 30	23 23 23	34 44 42	1.84 0.53	+ 0.26	0.65	0	6 3	14 15	11 4	12	nw. sw.	Dr. C. W. Bolton. H. H. Crisler. T. J. Murray.
osedalenatobia	Tate	284	3 2	64.9		93	21	34	23		0.87		0.75	0	2 4	11 22	8	12	nw. n.	THURDRECHIE DE DE CO
occoeflolk	Madison		10	68.9 70.4	+ 4.3	97 96	4	30	23	43 36	0.55 2.62	- 2.09 + 0.21	0.32	0	6	20b 19	6b	3b 8	s. ne.	J. C. Pitchford.
hula	Holmes	130 502	6 18	67.8 64.4		96	41	33	23	40 30	1.11		0.39	0	6	9	18	4 5	n.	J. C. Pitchford. Prof. George H. Kent. Dr. M. P. Winkler. Prof. J. H. Dorroh.
ica	Hinda .	287	7 40	68.8	+ 1.3	96	3	32	23	40 31	0.94	+ 1.30	0.43	0	3	146	7 4b 7 8	116		Dr. J. B. Dudley. U. S. Weather Bureau
cksburg ater Valleyoodville	Warren Yalobusha	300	22 17	68.6	+3.3 + 3.7	92 96	21	39 34	23 23	31 40 35	0.67	- 2.13 + 0.41	0.41	0	3 7 3 6	16 20		8 3	n. sw.	Miss Louia Erikson.
oodville	Wilkinson	116	17	70.3	+ 3.3 + 3.7 + 3.7 + 3.5	90 96 92 96 95 96	4† 2† 3† 4 2† 4	30 35 33 35 32 39 34 38 33	23 23 23 23 23 23 23 23 23 23 23	35 41	1.72 0.80	- 0.95 - 1.07	1.12 0.25	0	6	25 20	4 2	9	ne. nw.	James E. Lee. W. H. Courts.
Louisiana.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14		00	, 0.0	30		00	-		0.00	2.00	0.20							
beville	Vermilion	18 77	23 23 23	71.3	+ 2.4	93 94 93	2	40	23 23†	32	5.66 2.82	+ 2.33	3.12 1.26	0	7 7	14 15	4 13	13	n. n.	Ć. J. Edwards. Nellie Graham.
xandria	Tangipahoa	130	23	69.8	+ 2.4 + 2.0 + 3.4	93	4 2†	37 35	23	38 38	3.00	- 0.28 + 0.53	1.50	0	4	13	14	3	n.	Lulu M. Wentz.
tiochoca Island	Claiborne St. Mary					••••					4.00		3. 25	0	3					W. L. Anglin. J. N. Pharr & Sons, L
ton Rouge	East Baton Rouge.	60 20	23 11	71.0	+ 3.1 + 3.4 + 3.6	95 95	2† 7	39	23	36 35b	2.48	+ 0.24	1.63 1.82	0	8	18 13	5	11	ne.	Elmo M. Bott. C. S. McFarland.
rrwood	Plaquemines	1	23	77.1	+ 3.6	95 94	2	38 57	23	35b 19	8.43	+ 0.49 + 4.28	2.71	0	7	14 22	16	1	ne.	Graham Myers. C. E. Smedes.
ieshoum	Ouachita	180	23	67.2	+ 2.7 + 0.4	97 96	4 2†	39	23 23 23 23 23 23 22	32ª 41	3.37 3.23	+ 0.97 + 5.67	1.89	0	8 7	16	9	8	ne. nw.	N. Louisiana Exp. Sta
meron	Orleans	6 7	18	70.4	+ 0.4	89	1†	46	22	25	8.61	+ 5.67	4.05	0	8	9	15	7	n.	State Biological Sta. Loyola College.
eneyville	Rapides	67	23 1	69. 2 70. 5	+ 3.4	96 96	3 6	38	23†	39	2.57 3.27	+ 0.68	1.10 2.15	0	6	14	11	11	e. ne.	Walter I. Tanner. Cinclare Central Factor
nton	East Feliciana	113	23 10	70.1	+ 3.4 + 3.1	93 99	11	38 38 37 34	22 23 23	39 36 33 39	3.76	+ 1.26	1.67	0	6 5 3	10 13	10	11 12	n.	John A. White. John B. Reily.
linstonumbia	Caldwell	65 137					4						0.58	0	3		6		8.	H. W. Blanks.
vingtondson	St. Tammany	39	19		+ 4.1	94	4† 3† 3†	38 35	23† 23 23	40 38a	1.52	- 1.25	1.01	0	6	11 15	5	14	s. ne.	Lucille Champagne. J. P. Lucas.
nalds on villetehtown	Ascension	33	23	73.8	+ 4.4	98 94	3†	45	23	38a 38	8.91	+ 5.93	5.50 1.72	0	5 2	18	6	7	6.	John F. Park. Picard & Geismer Ltd
merville	Union	177	23	65. 0d	+ 1.2	95	5	34	22	33d	1.68	- 1.00	0.72	0	4	11	7	13	n.	W. P. Chandler. R. Z. Sciater.
riday	St. Mary	10	19	70.4d 70.6	+ 1.8	94	5 2 2† 2† 3†	42	23	43d 33 49b	0.29 4.71	+ 0.58	0.15 2.88	0	7	14	5	12	n. ne.	J. M. Bonney.
and Cane	De Soto	302 93 44	17 23	62.7 70.3	+ 1.8 - 2.5 + 2.6 + 4.5 + 5.1	95 94 96 97 94 97 95	3†	34 32 42 26 36 36 41	NA N	49b 34	1.86	- 0.92 - 0.62	0.81	0	6 5	10 21	12	7	90. 99.	G. Foster Provost. St. Charles College.
mmond	Tangipahoa	44	23 19 23	71.4	+ 4.5	97	2	36	23	38	2.74	+ 0.36	1.44	0	5	22 25	5	6	se. e.	C. C. Carr. J. M. Foote.
a	Catahoula Calcasieu	13.75/07/09/09/09		70.1	+ 1.6	99 95	2†	33	23	34 38 38 42 35	1.02	+ 3.00	0.55	0	55588	9 8	16 16	6 7	8. se.	I. A. Wilbanks. J. F. Buch. P. M. Donley.
nings	Morehouse		14				1													P. M. Donley.
ayetteke Charles	Calcasiou	36 22	23 23	70.6 69.0	+ 2.8 + 0.6	96 96	8	37 35 45	23 22 23†	35 40 24		+ 0.66 + 3.62	1.45 2.01	0	9 7	11 15	10	10 16		J. J. Davidson. George Boudreaux.
Rose (near)	Cameron	9	••••	68.0	- 0.8	95 95	747	45	23†	24 30	5.18		2.61 1.45	0	8	23 24	1 4	7 3	s. ne.	L. J. Nunnemacher. La. Delta Farms Co.
wrence	Plaquemines	6	20		+ 3.5	96	2	48	23 23	26	2.59	- 0.36	1.16	0	8	16	10	5.	n.	H. C. Warmoth. C. M. McFarland.
erty Hill	Vernon		23	69.6	+ 3.3	103	2	33	23	45	1.61	- 1.12	1.14	0	4	18 11	3	10 13	s. e.	E. A. Crawford. Bettie M. Dennis. Charles B. McNeill, A. P. Windham. Ethel Fort.
ransport	De Soto St. Mary	192 45	23	69.0	+ 1.8	97	3†	32	23	49	1.52 1.92	- 0.79	0.97 1.22	0	4 3	11	4	16	n.	Charles B. McNeill,
rryville	Calcasieu	194	23	65.4	- 0.1	97	5	32	221	46	1.03	- 1.48	0.35	0	7	14	6	11	n.	Ethel Fort.
rgan City	Ouachita	194 82 14	23	65. 4 69. 6	+ 3.7	97	4	32 38	23	42	3.27	+ 0.61	1.00 2.72	0	5	17	0	14	w. ne.	Virgil E. Kinsey.
vellton	Tensas		5 4	67.5		95	1†	31	23	43	0.46	+ 0.98	0.27 2.00	0	4 7	19	3	9	8. e.	John D. Fultz. Mrs. John A. Gebert.
w Iberia. w Orleans (1)	Iberia Orleans	15 51 18	23 40 23 19	71.4 74.0 73.4 70.5	+ 4.5	95 92 93 96 99	21	42 52 46 35	23 23 23 23 23		1.99	- 0.94	0.86	0	7	14	10	7	n.	U. S. Weather Bureau
w Orleans (2)	St. Landry	18 83	23	73.4	+ 4.6	96	21	46 35	23 23†	32 45	2.50	+ 0.33	1.58	0	9	11 8	12	17	ne. n.	Sugar Exp. Sta. Andrew Moresi.
adisrl River	St. Charles St. Tammany	29	5								2.16		0.55	0	7 7	21	7	3	n.	George F. Bancks.
in Dealing	Bossier	268	19	66.8	+ 1.5	99	2	33	22†	39	1.12	- 1.51 + 1.71	0.00	0	3 7	20 16	3 0	3 8 15	ne. n.	Leon Sanders. A. P. McNeil.
rneerve	Acadia	44	19 10	73.8	+ 6.0	95 101	6	42	23 24	38	5.92	+ 3.77	3.17	. 0	4	20 17	6	5		L. Godehaux Co. Ltd.
belineston	Natchitoches	147 312	15	66.8 70.7 73.8 66.5 66.6	+ 2.2	96 88 91	11	33	23†	460	2.65	+ 0.15	1.40	0	3	27	3	11 4	e. s.	Ruby McCook. R. A. Clampet. L. P. Kilbourne.
Francisville	West Feliciana	115	8	69.8 73.2	4 5 0	91	3† 6 1† 3 3† 2† 2	33 37 42 33 37 39 41 36 38	23† 22 23 23 23 22 22	36	3.86	+ 0.65	2.11	0	6	27 24 23	5	2 7	8.	H. F. Riveire.
riever	Terrebonne Washington		1	70.5 66.9	0.0	98	2	36	23	40	1.53		0.65	0	4	16	9	6 10		D. A. Self. U. S. Weather Bureau
eveport	Caddo	249 42	40	66.9	+ 1.3	94	6	38	22	31	1.72	- 2.45	0.35	0	6	15	6 2 3	23	sa. n.	C. T. Leigh. F. L. St. Martin.
thern Univ. Farm	Avoyelles		14 18	69.8	+ 2.6	93	3	43	23+	32	1.42 5.72	- 0.97 + 2.84	0.55 2.56	0	3	23	20	5	ne.	G W Richardson.
lulah	Madison	91	4	63.81		93 90 92	14	43 30 35	23† 23 22	451	0.62		0.50	0	3 4	16	8	7	ne.	C. E. Speed. H. C. Fondren.
lker	Livingtson	57	1	71.4		94	3†	50		40	4.56		2.60			-0	9		2001	J. C. Carlton.

*, b, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
**Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings

† Also on other dates.
T. Precipitation is less than 0.01 inch rain or malted snow.

TABLE 2 .- Daily precipitation for October, 1911. District No. 7, Lower Mississippi Valley.

Chieves A France	Stations.	Watershed.	-						-									Day	of m	onth.															
Section Company Section Sect			1	2	3	4		5 6	•	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
The control December Decemb	Colorado.									O. I																							-		
The first control of the control of	ena Vista	Arkansas						50														. 40								. 40	. 05				1
tende periode	han	Big Sandy						E4																											
ppin Cember 2014 - 1	orado Springs	Fountain	.0	6 T.				42 7													T.	. 03	. 04	T.					T.						1
Company Comp	pple Creek	Oil Creek						35 1	r.													. 24					. 23								1
ment Lake Cring Crock 7		Big Sandy	.2				20 1.	40				****	****	****						****	Τ.	. 24							. 38	.37		****			1
ment lake South 7	irview	St. Charles					1.	55 .	61													*								. 30					
ment Lake Cring Crock 7		Little Ar-	. 5	6 .00	2	0	1	01	05									****			. 21	. 12	. 15							55	05				1
rail Lake. Grigo Civels 77		Kansas.	1.0		4	1			- 8	0.5			1	1	1					****	****	779			****	****			*	.00		.00	. 10	****	
Ariansa Ariansa 17 10 10 10 10 10 10 10		Grane Creek	9	0	7		18 3	47 .	25	****								. 60				T.	. 40							1 50	T.				
Ariensa Ariensa 17 10 10 10 10 10 10 10	ehne (near)	Purgatoire					35	76													T.	T.	T.								****	. 10			В
Ariensa Ariensa 15 16 17 17 17 18 18 18 18 18	lly	Arkansas		10	0	-	97	26	os:														.14	. 02											H
Value Valu		rountam	deve-				era like	USE .	10			I was a	Sec. of the last	1					A. David	10000		.36	.20	. 90	.01	****				. 18		. 40		****	
Vola 1 288		Arkansas																																	
Arbanasa 48 T. T. 20 52 T. T. 14 02 T. 18 8. 38 12 20 and the state of		Cucharas					59 1	42													****	20	67	15						. 43				T	
Index March Marc	adville	Arkansas	41	P T	T	:	20 .	52 7	Γ.									T.				.14	.02	T.					. 18	. 38	.12	. 20			13
refinal Pass. A Passauss. T. T. S. 22 60 1 1 2 0 0 0 1 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Big Sandy				12		301			Maria		1	1	1	1	ALC: NO	. 54					.14	03					10	.06		07			
ret Lake Porgations 15	rshall Pass	Arkansas	1									. 20										. 40	.20	.00					. 10						
Section Sect	nument	Fountain	T	T																	*			.00		***									1
Care	eblo	AIKHHSES					66 .	UU .	11								.leers				I.	. 07	. 02		****	****			-10	. 16	****				
Idea Arkanssa.	cky Ford (near)	do																																	
Interface				2			1.	85 .	20													1	. 05							. 50	95	. 20	. 06		
eridan Lake Arkanasa	nta Clara	Huerfano	1												1		1														. 20		. 09	****	1
Initial		Arkansas																																	
□ Butten Cumarron T 11 T 21 00 T 20 00 15 00 00 00 00 00 0	nidad	rurgatoire			100		1	52	15												T.										10	.03	.06		
Classified Control C	o Buttes	Cimarron	1	. T.			11 '	Г															. 21	. 04					T.	.30					
System Carachees 22 30 60 60 7 7 7 7 7 7 7 7 7		Oil Creek							13														. 16							. 20					1
State Comparison Comparis	yne	Arkansas																					. 11			****	. 51	****							1
odman samarim. Fountain. T. 10 30 67 71 71 71 71 71 71 71 71 71 71 71 71 71		Grape Creek					20 .	SEE	031			lun.	1		1	1	1					*	*	. 25						.70					
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bott. Canadian				. T.	T		10				. 21	. 13	.10	T.	T.	T.		T.	T.	T.	. 10	.11	. 13					T.	T.	. 20		T.			
Seff	New Mexico.			1														1			1						3			7		-		011	1
Def	h-44	Consdian			1	1									-			-			1			-			183		-	-	-				1
IRanch do 02			1				04 .											****							****					. 25					1
SE Jake G0 G62	rora	do					47 3	25 .	05	. 02	. 01																				. 20				
Deca	ll Ranch	do					**	15															*	.36				T.	.02			. 32			
acon	beza	do					02 2		10					1	1::::	1::::	1						. 281		ALC: NO.		1				T.	. 48			
marron (near) d.0 1.81 (1/2)	mpana	do			(05		Г															. 53						. 35	. 25	. 12				
yyfon	narron (near)	do				1	81	02															10	. 2	T.				40						
ervo	vton	do										later .	13	1000	Acres 1	1	.1																		1.
Wisson Go	OVIS	Red						22																								. 44		T.	
izabethtown do	wson	do			1					****					1	1	1	***	1.1.	1												.30			
rt Union Canadian	izabethtown	do					60 1	76 .	15																					. 92	. 15	. 08			
rt Union Canadian	Isom			100			00	79	Г.													T.	.50	. 61						. 34		. 25			
Design Ranch Canadian Canad		Canadian			. 10	1.																							T.	. 47	. 05	. 37			
Insort Fark	yden	do																					1.60												
Description	anson's Park	do	1	1	. T		00	TO					1	1::::	1	1::::	1	1			1::::	*			****				1.			.30	****		1
SALATIONS					. T		30 .																												
S Alamos Go Canadian S			1																			. 56	1.10			****		****	.44						1
Sins (near) Canadian * 10	s Alamos	do																																	
Irose					* * * *			10																						. 25	. 34				-
ami Ranch Canadian 1.73 0.03 1.91 3.5 0.05 0.07 2.25 0.3 0.8 24 0.00 0	lrose	Red					- 1									1							. 20			****				27		.36			
15	ami Ranch	Canadian																									1		. 40	. 20	*	. 55			1
Dunf Dora (near) do					-		19 1	. 35																.07					. 26	. 03	. 08	. 24			
ra Visa do	ount Dora (near)	do						45						1								*			****	****						. 40			
timo do	ra Visa	do				:	22 .																												1
No verde	timo	do			-																														
Samonte do do do do do do do d	lo Verde	do,													1								.06							13	.03	.38			
rtales Red	samonte	do																		1															-
ciada - do - 35 sebud - do - 27 - do - 27 - 48 - 16 - 12 - 20 - 38 - 30 - 30 - 30		Red	1	-						****	- * * *													1.10					T	28	10	61			1
ciada - do - 35 sebud - do - 27 - do - 27 - 48 - 16 - 12 - 20 - 32 - 30 - 30 - 30	ton	Canadian					22 1	. 63				15										. 04	*	1.00					.02	. 12	.11	. 10			
y (near)	ciada	do					35 .	40															. 42							. 27	. 53	. 20			1
y (near)	y	do																					- 10						10	20	15	30			1
100	y (near)	do					60 1	. 55																					09	.27	. 12	. 28			
ringer. do 30 40 10 18 48 10 18 48 10 19 19 10 18 48 10 19 19 10 19 19 10 19 19 10 19 19 10 19 19 19 19 19 19 19 19 19 19 19 19 19							01 .																	.4					12	. 48	T.	.44			
ylor. do 1.14 T. 30 T. T. 30 T. ementina do 1.7 90 01 20 02 36 02 46 10 10 10 10 10 10 10 10 10 10 10 10 10	ringer	do				***	30	40	Ui		****	***						***																	
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ron								. 90															. 01	.2					. 02	.30	. 02	.46			
nce (near)							70	T				1						***												. 5	. 50				
mre (near) - Canadian		ron	1		1	1	1				1	1	1	1		1		1		1	-	1	13				1	-		1	1000	1	12:00	1	
rate on Mounddo	nce (near)	Canadian			-		59	. 30	29			100	1	1	1								1.4						04	. 21		.40			

TABLE 2 .- Daily precipitation for October, 1911. District No. 7-Continued.

Stations.	Watershed.														•	oy (of me															
in the law of		1	2	3	4	5	6	7	8	0	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Texas.																																36
narillo	Canadian		. 13		T.	T.															. 07									.14		
cher City	Reddo				••••	••••	••••		: 12					.50		••••	2.00		••••	••••		. 21	.20	• • • •	••••	••••				. 02	. 20	
nhamnadian	do													. 17			. 68					. 47						99			. 11	
ldress	Red			. 40																	.01	T.				T.		T.	1.00			
llicotherendon	do	.76	••••		••••		. 05							••••						••••	****					••••	17.10	.35	. 35	.40	.02	
rksville	do																											*		1.03		
ndehart	Canadian	.06				. 57															.04	.31	.02							. 25		
ley []	Red	.40			••••												1.22			••••		. 20	.10									
arietta	do													.84								. 28	.09								.13	
eford mphis	do		45																			****	****			****					. 65	.15
mibeetie	Canadian Red				. 10	.10																.04						. 30	. 10	1.75		
areth	Canadian						****																									
iltree	Canadian																													. 25	. 05	****
handle												T.	T.		70		1.07					. 50	49								. 03	
is mons	Canadian		.30	.17		. 22							Т.	. 63							.10	. 08					. 07	.81		.17		
nahii go Crossingii	Reddo	. 60	1.50		. 25									T	T.		1. 25					T.	T.	.44					T.	. 30	. 55	T.
nero	ReddoReddododododoCanadian				.18			1 00					T.									. 53						. 10		. 38		
rman								1.00					Т.	T.			1. 20				.07	. 32				****	T.	.50		. 52		
phur Springs	Red Canadian	1000			1000	1															.40									****		
ia	Red	. 30			. 02	. 20							T.	T.							. 51	. 75							. 66	. 04	T.	
hita Falls	do						. 03			T.				15		1. 17						. 30			****		****			. 10		
Kansas.						60								100			1		1000		F.	13		-	100	1					633	
en	Arkansas	1 15	25						131	15				the state of	3													.74		.00		
hony	do	. 40			. 03	. 02							T.															. 29	. 07	.15		01
land	Neosho	.07	.02	. 12			. 02									T.			****				****			****	.01	.34	.06	T.		
nute	Neoshodo Cimarron	. 31	T.	. 20	.31		T.							T.		. 37						T						. 32		.09	. 31	
dwater	do			.09			. 10																					.86	. 02	. 12		
umbuslidge	Arkansas	. 32		T.	. 26	. 54	T.								.11						.12	. 02		****				. 24		. 31	.01	
tonwood Falls	Neosho	. 18	3											. 08			T.										T.	. 54			. 15	
ningham	Arkansas		T.	T.																****								1.40	T.	.05		
ige City Dorado	do	1.85	. 16			. 05								.18													.06	. 28	. 01			
inwood	do	. 13	. 03	.06									. 54															. 54	. 02			
poriareka	Neosho Verdigris		. 10											.73							****							. 40	T.	. 32		
l River	Cimarron	. 00	. 10) H																								.30		.10	. 10	
donia	Verdigris	. 03	3 . 25	8	. 10	T.	T.							T.		. 31	. 07					T.					T.	.11	. 06		-16	
den CityatBend	Arkansasdo				1		T.														****	T.						. 44		.70		
ensburg	Verdigris			. 28			T.																					1.10		. 12		
38	Cimarron Verdigris		.10		. 02	. 20																T.					T.	. 80				
wardgoton	Verdigris		13	3	T.	7.11															.15						T.	. 20	T.	. 06	T.	1
tehinson	Arkansas															91												. 79		. 04	. 07	
ependence	Verdigris	. 30	110	5 .08		1	.04									1.0											. 01	. 25	.02	. 12	. 17	T.
more	Arkansasdo	. 0	5 .00		T.	.30 T.							1							. 27		****					T.	. 08	T.	. 20	Т.	T.
gman	do	. 51 T.	T.		T.		m						. 00														T.	.94	.00	3 .00		
Crosse	do	T.			.4	T.																						. 16		2		
ned	Neosho	T.	. O.	2 .16 T.		. 01		T.				T.		.0	T.	T.	T.										T.	.30	T. T.	T.	T.	5
Roy	do Cimarron	03	3 T.	.23											. 01		.01										. 20	. 24	.0	4 . 02	. 24	
eraleksville	Arkansas		1. 10 3 T.	. 41	T.	T.	. 20														T.							. 81 . 81	T.	.11	. 00	
Phersondison	Verdigris	1.00		. 0!		. 02								1.00	3															2 .00		
rion	Neosho	T.	.00	T. T.		T.											T.						b.				T.	. 76		1 .00	2 .06)
dicine Lodge	Arkansasdo							1																			1	. 67	.0	4 .00		1
dora unt Hope osho Rapids	Neosho	.13																										. 64	.00	8		1
s City	Arkansas	2	0			. 10														1								. 13		1		. 5
wton	do	. 00			T.									1.0													0	1.0	.00	6 .0	. 10	0
wego	Neosho	. 16	8	25			T.								1	1. 30)												T.	0 .20	13	
dns att	Cimarron	00	8 T.		T.	10)															****					. 7	. 61	T.			
hfield me.	Cimarron Arkansas					. 13	3														. 19	T.					1	30	1 .64	6 . 1	5 .04	5
lan	Verdigris	. 10	0 T.	. 03	0.0	5	. 0	5																				. 00	.0	4 .2	5 . 20	0
ronto	Cimarron	. 01	9			. 20				1								1	1::::				1					.00 .40 .30 T.	.0	4	9	
ysses	Neosho	Т.	.9	8 T.	.8	2	-						783			. 5	T.										T.	T.	T.			
ellington chita nfield	Arkansasdo	0			T.								T.						1								. 3	6 . 39	.00	2 . 1	6 .00	
nBald	Verdigris			100	1	1	1		13.	100		1 33		1000	1242	1000	ACC.	1. 50	1.00	1200	1	1	1	1	1.0	1000	1000	T.	.2 T.	1 .3		

TABLE 2.—Daily precipitation for October, 1911. District No. 7—Continued.

G4-Al-ma	Watershed.														1	Day	of m	onth.															-
Stations.	wateraded.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oklahoma.					1		-							91		***						. 48								.04	1		
lava.	Canadian	20			1.18 T.		. 33						. 50	. 31		. 00		****										.33	. 07	. 2	5		
pache	Red	. 03			. 63																								T.	. 40			:
apaho	Washita				. 28		****	.30						. 40			30	****			****							. 18	. 09	.77	T.		:
dmore	Red Canadian	. 13				1.7.	****	. 30				****		. 30																			
rtlesville	Arkansas				. 09		T.									. 19											70				T.	10	ا
aver	Canadian		. 01		. 50		.02																				1.	. 30	. 15	T.	.22	. 10	1
ekburn	Red	. 52			. 10		.02															. 64											-
vin	Canadian					. 04		.64														. 34		****				****			. 48		-
ndler	Red	. 10				30		. 04	****								. 23						****					1		20	. 90		
ekasha	Washita	. 10	1																				****										
ud Chief	do	. 42					T.															. 20						T.		. 63			
rant	Reddo	. 10		T.	T.	T.	****								. 02							61	. 09	****	****	****		.10					
City	do	. 24																												.00	. 08		
Reno	Canadian							.,																						. 20	.45		
id	Red																			****	45			****			.80	T.	. 65		. 26		
rland	Arkansas				1.05		. 34	. 05	. 03								. 63					. 42								. 08	. 02		
t Gibson	do	.37			T.	. 93		. 63	T.	T.							. 40	****				. 28	. 17					T.		T.	.04		
derick	Red Canadian	.08	96		. 01		T.		****			****	****								14	. 10	****	****			1111	.28	.14		. 20		
thrie	Cimarron													2.00																			
ymon	Canadian																	****															-
rrington	Red Canadian			Inches.	0000															****	****			****		****		****					
aldton	Red						T.							T.		. 10						. 26						. 12	. 10	. 15			
lena	Cimarron				T.								. 13											****				T.	. 03	.30			ı
nnesseybart	do Red				. 03									2. 25							****	. 61		****		****	****	.08	T.		T.		1
ldenville []	Canadian							10			1			90			20					25	11							. 05			
oker	do		1.61	T.		. 16															. 09	T.					. 03	. 37					4
rley	Cimarron					.,36																		****			. 39	. 80		. 60		****	
bei	Red						****		-	1			14														T.	. 05		. 35			
nton	Cimarrondo					. 10	. 42	T.													. 30	. 25		. 30			T.	. 35					-
ngfisher					. 03		. 04	90				****		1.09			1 09					20						. 02		. 50		****	-
Alester	Canadian		****			****		. 30		****		****	****	0.01			1.02					. 00											
ngum	Red	. 25																				. 65						T.	. 14	. 67	.30		-
riow	Washita						40000																										
eker	Canadian					****						****	****			****	. 21	****	****		****		****								. 45		
skogee	Arkansas				. 58		. 28	. 40									. 40					. 38											
tual	Canadian													1		2000					1									. 57			1
ola wkirk	Washita	.05 T			.31	****	T.						****			****		****	****			. 33	****	****			****	T.	. 28	.32	.06		
rman	Canadian	T.					T.							. 96		. 09						. 18						. 05	T.	. 56	.06		-
kwood	do												T.	. 56							T.					****		. 05	.10	. 45	T.		-
eenelahoma	Cimarron Canadian	. 04		.00	. 45		.01					****	73	.01		12				****		.09	****	****				T.		.30	1	****	
mulgee	do													. 33		. 50	. 05					. 25											
uls Valley	Washita						. 39															. 37						T.	OF	. 16			
whuska	Arkansas					****	T.							T.		T.				****				****	****		****	1.		1. 52		****	1
via	Washita					****	. 65							.50			. 84					. 20											
and Fox Agency	Canadian	****					. 30							. 67		. 23						. 16								. 15		****	
awnee vder	Red	****	****		10			T.						1. 45	****	• • • •	. 13					. 17		****						T.	. 14		
llwater []								T.						.72			. 18													. 21	. 22		
lsa	Cimarron	T.			. 24	. 27		. 07									. 88					. 18							. 20				-
nita	do				1.70		. 79		****	****						. 75						. 26 1. 90					****			. 23			1
agoner	Cimarron				. 45		T.			****	****		2.80	.71		. 10	****					1. 50						. 02	. 15	. 35			
urika	Red																					. 29					****						-
eatherford	Canadian					3. 10		1. 13		****	****			1.35			.79			****		. 05		****			****		. 11		.38		1
bbers Falls	Arkansas				. 22	3. 10		1. 13									. 13					. 10							. 20	. 26	. 02		
oodward	Canadian				. 27																							. 30	. 03	. 22			
Missouri.																								17					1				1
MISSOUTI.																					-								1			1	1
lle	Meramec						1.00															. 29									. 29		
rehtree	Black				.30			. 52									****					. 60									.16		1
rdwell	Mississippido	T		1	1.08			.05	T.	.15	****	****					T.					T.	.18								200		
sville	White						.82						T.	.07			.17					. 56									.06		
m	Neosho				. 72				. 43	.02						.11					. 50	T.	.88						.02				
niphan no	Black Meramec	61	14		.31			1.27	T.				****		****					****	.13			****	****					T.	.25		1
odland	Black	.02	. 10					.90	.04													. 67									.10		
enville	Mississippi														****																1.0		-1
llister	White Mississippi		7		. 40			. 82				T	T.		.76 T.							. 68								T.	.15		5
nton	do		I.		. 40		.39	.02		.03		1.			4.																.48		1
din	Neosho						1.50	.11										. 46					. 25										-1
shkonong	Black				. 29			. 48	T. T.					.05							.18	. 62	. 02						.18	T.	.10		٩.
mar [] rble Hill	Neosho Mississippi	. 16	1.10	10	.31			T.	T.			****		.81	T.		.82					.81							.18	.00	.61		
untain Grove	White				.36			1.35						. 42							.10	. 62											
unt Vernon	Neosho		.03		. 79		.17	.11						. 62	.01																. 15		-1
oshow Madrid	Mississippi					.04		.37	.03								.15			***		. 50	.44						.08			****	1
kfield	Meramec	1.73	. 25		.32		.12	. 05						T.	T.	.13					.12	.80						.03		T.	.32		1
	White		1		1.32		-	41						. 33			-	-		770	. 25	. 65											
len lla ringfield	Meramec						.75		.04					. 00	.10						. 03	4 00	.04					2.0	T.		. 21		

TABLE 2.—Daily precipitation for October, 1911. District No. 7—Continued.

Stations.	Watershed.									- 175	36.1		1		1	ay c	f mo	ntn.		1							-						Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	T
Kentucky.								3.0								-			- 1												inp		R
landville	Mississippi				.11			.17		. 10	.04						.11	.04				T.	.14								.07	****	0.
ynnville	do				••••		• • • •			••••	••••	••••	••••	****	••••	••••	****	***		****	****	****	****		****			****	****	****	****	****	
Tennessee.								_									4.1	m					10								T		0.
rlington	Mississippido					. 05					.50	. 02			****		T.	T.													T.	T.	1
olivar rownsville	do	••••				.35	••••			••••	.30							. 05				••••									****		0.
versburg	do	.20	.90		20	. 27					. 40						T. 2.30	T.	T.				. 64								T.	T.	3
enton	do				1.25	13.33				. 15	.02						. 50	. 05					. 20								.03		
emphis	do	. 60				. 22			T.	.19	.03							2.10					.08	T.							.00	T.	18
renton	do				.37						.12						.13																0
Arkansas.			****				••••			****					-																		
licia	White		100		T.								183				2					55									.10		. 0
mityrkadelphia (near).	Ouachitado															.50						. 50											1
rkansas City II	Mississippi	1	1	To be seen		Contract leading					1.50			Т.			.63	. 20				.42										****	. 1
Satesville	White Arkansas				1 40	.14		.08				T.	T.				.02					.28									.06	.02	
Senton	Ouachita												T.									.41	. 48						T		.01		. (
Bentonville	White				. 91		.01	. 48	.01				Т.	.18							.05	. 61											. 2
Black Rock II	do					. 44		.19									T.					. 26	.68								T.	.05	
Brinkley	do				.10	.40			T.	T.							. 59					.10	.70								T.		- 1
amden	Ouachita Red				T.					T.		T.				1.67						.50								T.		.02	. 1
Conway	White	.98	••••	1::::					••••	.06	. 14			.02			T.	. 01				77	.01								.00		2
orning	White																.70					.08	-46										
Dardanelle	White	1			1.05		. 76								. 95							1.42											
Outton	Ouachita				1.12				Т.		.14	.01					.35					. 70	. 23								.01		
Ingland Lureka Springs	Arkansas White				79	T.				.15	.18					.10		.08				.61	. 64								T.	.04	
ayetteville	do				.70			1.26									.34					. 58									.61		
ordyce	Ouachita Arkansas				. 03		.10			.21				T.		. 52					T.	.15								. 0	2		
Fulton II	Red				24	.18		.20				.02					1.30				T.	1.02	. 44								1.16		. 1
Ielena	Mississippi	.34				. 12											T.					20	T.								T.		
Hot Springs	Ouachitado									. 02	.7						.74					.07	.04										. 1
onesboro	White Ouachita			. 52				.05		T.							. 25					.21									T.	****	. 1
ake Farm	Arkansas									. 42		T				. 21						.42									T.	****	: 1
ewisville	Red Arkansas	1			T.					T.		T.		T.			.07					. 33								T.	.01		. 1
Malvern	Ouachita				1.08		• • • •	.13	T.	T.							.38				. 13		.35								. 06		
Mammoth Spring Marked Tree	White St. Francis				.30	10		. 56		.08	.1			. 07								.8									. 08		-
Mena	Ouachita					.16								. 47			.94					. 60										.10	. 3
Newport	White				****	. 23		.11															. 70										
Pine Bluff	White	1.58	3		.30			.66		. 04	.18						. 20					.86	.50								1:15	.06	6
Pond	4 -1				80			11 10	123		1						. 33					. 42									. 00		
Portland	Ouachita		1	1::::	X.:	.34				T.	.04	T.	.02				.86	T.					.38								. 0	2	
Rogers	OuachitadoArkansas Red				. 67		.32	. 52		.06	.28	.04		T.	T.	.28	.90	.00				1.45 T.	.36			1:::					0	5	
Stuttgart																																5	
Subjaco	White	.0	2		1.76	.02		4	. 02							T.	.16	.0	T.		.08	.70	.01								0	7	
l'exarkana																	.95						. 21										. 1
Warren Whitecliffs	Ouachita Red Ouachita	1.9	5			T	T			T.		0	T.				1.14					.47	. 48								. T.	9	
Wiggs Wynne	St. Francis.	2	7			.40					.2	3											.2	3							1	4 .04	4
Mississippi.			1	1			1								-													1					1
Anguilla	Yazoo			1						T.	.20)					. 66																
Austin Batesville	do				.34					.18	.30	3					.11	1	· lana			T.	1									00	12
Byhalia	do					.11					.7	3			****		.10																
harleston	Big Black									.07	1.3	. 48				.0	. 30	.3			1:::		Т.					1		1			
Byhalia. Canton. Charleston. Clarksdale	do					. 03					1.7	. 02	. 60				.13	.03	2				.0	1							0	Z T.	15
Coffeeville	do	1:::								.88	1.7						. 45	.0	3				.0	7								T.	
Corinth	Mississippi	.8	0							.10	2.30	.16					. 10					T.	.0	6							. T.	T.	
Crenshaw	do				. 13			· m		1.33	1.10	3				T	. 70	0.0	8													U.	
Edwards	Big Black							.13	5	.20			.10				30	1	0				-									T.	
Fayette	Mississippi						T.	T.		.00	2.3	0 .07	.01				. 10	1 .19	9				T.			1:::						00	6
Duck Hill Edwards Fayette Greenville Greenwood Greenwood	do	. 0	4							.00	1.5	3 .4					. 02	.6	8													00	9
Grenada Hernando Hickory Flat Holly Springs Kosciusko Lake Cormorant	do		::::							. 4	.5	8					25	0.	6				.0	8								9 0	-
Hickory Flat	do		8							1.50	1.0	5 .00	3				.4	1.1	7				1.0	1								01	1
The state of the s									00	N.	0	al 01	1	1	1	1	1	1 0	n	1	1	1	1			1		1	-	1	1	1	

TABLE 2.—Daily precipitation for October, 1911. District No. 7.—Continued.

															1	Day	of mo	onth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	2	7 2	8 2	9	30	31
fississippi—Con.																																	
ıla	Yazoo										19					T.	00			T.								1		-			
alone	Yazoodo	****	1	1	1111	1000		1	T.	. 20	.93		1	1			. 41					.12										.02	.08
rks	do				. 25					. 23	1.01	0.8	t l		1																		
tchez []	Mississippi												. 40					. 36															(T)
w Albany	Mississippi Yazoodo Mississippi				.08			****		1.62	.96			****	****	90	. 28	.08		****		16	T.					17		** **		***	T
ntotoert Gibson	Mississippi			****	I.			****	T	.00	20	10	23		****	. 20	T.	****	****	****	****	T	****	****				1.			***		T.
sedale II	Yazoo	****		****		****					.78	- 40																					
sedale	do									.05	AR	1	1	1	1		OW		1	1		dr.			1	Town.		1144				4865	4-4-1
occoe	Big Black			1					, 23	T.	T.	T.					T.	. 32				****											
folk	Mississippi Yazoo						****	. 22		.03	. 70	1.19		T.	****	m.	. 46	****		****		****										***	T.
ula iversity																																	
CO.	Mississippi do Y azoo	****	1			****				T.	. 43	.34	T.				.17																
ksburg	do							.07		. 41	T.	. 03	.01	T.			. 10	.03				T.										. 02	
ter Valley	Yazoo									1.12	1.40	T.					. 40					T.										T.	
odvillezoo City	Mississippi				****			T.		.08	. 36	.06		. 04			1.12	.06	****		****	****											
too City	Y azoo	****							. 25		.20	. 10			****			. 25			****	****		****		1	****	.1					
Louisiana.																												-					
harefile	Coast						T	17		26	98	79	01	96		10	3 19					T					1	1				.01	
bevillexandria []	Coast Red	****			****		4.	.14	1. 26	. 20	. 26		.01	.15	. 25	.10	T.	.58					.15					1					.17
ite	Coast									1.50	. 20	.10	T.					1.20															
loch	Red																		****														
ca Island	Coast											0.	.50		. 25		3. 25	1 60				T	T	****	****			-					
ca Island on Rouge [] rside rwood es houn	do	****		****						.10 T	. 20	1 50	.31	.03	.07	****	1.89	1.03	****			1.	1.			1	****	1			**		
rwood	do	****				****			.42	,12	1.70	. 55	. 00	.56			2. 71					T.						1				!	2.37
08	do		.03						T.	. 21	. 25	.32	.14	. 47			1.89	.06			T.												
noun	Ouachita									.47	. 80	T.	.06				1.68					.06										. 10	.06
neron	Coast				. 54	T.		.71		.10	. 63	1.43		.82		. 33	4.05											1					
neyville	Red												05		1 10	****	98	70		***-					****					** **			10
plare	Coast			****				****	20	25	15	.40	.00	. 12	1.10		2 15	. 10		****		****	****	****	****						**		
clareton	do								T.	. 22	. 05	1.67	.30				T.	1.52				T.											
ımbia	Red																(T)																
ington	Coast					****				1 01	. 09	.17	. 40	.10	T.		T.	. 09				T		****	****		****	-1			**	T	
daon	Coast	12	****		****	****	****		****	1.01	. 15	T.	5. 50		.12		. 02	3.02														*	
tchtown	do							T.	T.	T.	1.18			T.	T.	T.	1.72																
merville	Red Coast do do Ouachita									.72	T.					. 42	. 40					.14											
rickay		***				****	****			****		. 10	1		1		. 12							****				.1					
nklin	Coast	****								. 35	.46	.31	.00	19	.50		. 15	2.88					95	****									
nd Coteau	Coast	.14	****	****		****	****	****	****		.03	. 18	****	1.05	. 20	.03	1.15	. 00			T.		. 20			1							T.
nmond	do		****		****	****			T.	. 28	.12	. 65				. 25	1.44																
nklin nd Cane nd Coteau nmond	do									. 55		. 40		.30		.16	. 52																
	Red								. 55				.10				.37																- 00
nings	Coast	****						. 69	.78		. 25	.00	. 34		2.04			1.98						****									. 00
votte I I	Coast		****	11			****			02	28	08	11	. 01	76		.80	1.45	****			T.	****	****	****			1	**		***		
e Charles I I	do	****				****		****				.19	. 45	.80	1.70		2. 01	2.00															.11
angs	do			****			. 25			. 21	. 18	. 58	.02	1.00		. 33	2.61																
Rose (near)	do							. 04	. 08	.14	.19	. 62		1.45		1.30	.76																
ren *	do	.31								. 19	. 33	.13	.11		.07		. 29	1.16			****								** ***			***	
svill	Sabine Sabine			****		****		****		.15	.17			****			1.14					.15											
ansport	Sabine			****								T.	T.	.97	.13		.16	T.					. 26										
ville I I	Red							15.	115		1.	'E'.	T.	1	. 30		- 40	1. 282		1	1							.1					T.
ryville	Sabine Red												::				***															02	
den	Red Ouachita			****			****				.17	. 03	.11	****			. 35	1 00	****		****		. 25	****							**	. 00	
	Coast								T.	.10	. 50	.35	T.		.77			2.72										.1					
rellton	Mississippi									.09		. 27		T.			. 05	. 05				T.											
r Iberia	Coast								T.	.15	. 40	.35	. 25	. 45		T.	2.00				. 05											T.	
orleans (1)	do								T.	.12	. 28	. 66	.06	.01			. 75	.11	****									1					
Orleans (2)	do	****		****					. 12	.09	. 21	20	10	****	. 02	****	. 68	.02				****										***	
Orleans (3)	do			****	****	****			.00	.11	.11	. 44	. 10	.01	.01		1.51	.03															
V Orleans (5)	do									.05	. 45	. 81					. 65	.06															
v Orleans (6)	do																																
v Orleans (7)	do																																
louses []	do				****			****	T	. 11	T	T. 00	17	T	1 00	****	82	02	****													***	T
or Orleans (7)	do		****	****	****			****		.22	.07	.55		**	. 20	. 22	.40	.50															
rl River	Pearl		.16							.16	.06	1.12	. 20				.02	1.12															
n Dealing	Red									.06							. 60					. 46											
me	Coast							T.	. 45	.15	. 40	T.	. 25	T.	. 85		. 25	2.10															T.
iton	Red Ouachita			****	****			****		.90	.04	1.	****	.10	1. 20	****	1. 25	. 30			.50			****							**		. 20
rancisville	Mississippi																1.75	2. 11															
riever	Coast									T.	. 28	. 26	1.35	T.	. 28		.18	1.65															
eveport	Red			****					****	. 05	.01	.02	****	T.	****		.35	00	****			. 28	****		****						02 .		-
mesport	Reddododo			****	****				. 28	T	. 05	1.	.14		.18		85	. 98							****							***	. 00
th. Univ. Farm	do		****	****	****		****			1.	34	. 40	.03	2.56			2.82	.10	****					****	****			1		** **		***	
										20	.03			an 00			- USF											-20.0					.07
ulah	Mississippi Coast									+ (36.5)	, Uni																						. 01

^{*} Precipitation included in that of the next measurement.

2 Separate dates of falls not recorded.

I Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 7, Lower Mississippi Valley.

		day	Colo	rado.				New 1	dexico.	•		Tex	xas.						Kan	ISAS.					N.	Oklal	oma.	
Date.	La	mar.	Lead	lville.	Pue	ablo.	All	pert.	Cims	arron.	Ami	arillo.	Pari	is. §§	Doe	dge ty.	Ellin	wood.	Io	la.	Lib	eral.	Wiel	hita.	Ardm	ore.§§	Bari	
14	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5			57 60 49 61 53	33 33 22 24 38	85 86 78 64 68	53 54 53 41 52	89 91 75 78 76	50 56 57 55 51	75 81 75 59 68	50 43 50 36 48	91 91 89 82 85	62 64 59 56 63	94 94 95 97 94	71 72 72 73 70	76 79 78 70 86	55 54 56 49 60	82 67 78 76 88	60 58 65 42 60	88 80 86 75 84	63 59 63 54 59	83 85 77 70 85	60 53 59 45 55	88 88 81 71 86	60 58 66 55 61	94 93 95 95 95	75 75 74 75 70	94 97 93 78 85	74 67 70 59 59
8			58 62 64 56	30 22 25 27 27	62 68 67 75 80	44 36 36 35 36	66 68 71 77 80	49 53 61 64 47	64 63 64 71 73	40 36 34 34 30	68 66 68 75 81	51 42 42 42 47	95 70 64 72 81	70 55 55 52 50	69 66 66 75 80	48 44 34 38 44	-84 67 65 75 78	57 50 31 36 34	81 55 56 63 70	53 48 45 44 41	78 68 68 78 85	55 39 35 35 41	79 59 55 65 73	54 50 48 43 46	91 68 61 70 77	74 55 49 41 47	85 73 61 68 75	66 52 48 56 36
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Mns			46.9	21.6	63. 2	35.7	73.1	42.9	62.8	33.1	70.1	44.1	77.7	53. 4	66. 2	41.0	69.5	41.7	67. 2	46. 4	68.5	40. 3	67.6	46. 9	75.8	53.6	75.0	48.6
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Mns		48.2	77.2	53.7	82.0	49.3	73.5	51.6	72.2	51.1	75.3	50.7		45.6		52.1		48.2		46.6		48.2					76.4	51.8

TABLE 3.—Maximum and minimum temperatures at selected stations, October, 1911. District No. 7—Continued.

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	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
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26	70 72 77 77	42 46 48 46 48 51	79 80 78 88 74 73	42 46 58 48 55 57	78 75 69 78 72 70	47 55 50 49 58 49	78 79 77 79 70 70	41 42 48 47 57 59	79 76 77 78 77 80	47 50 57 54 53 56	78 80 81 78 80 84	45 50 61 54 54 54	80 80 79 78 80 81	48 49 53 53 55 61	78 79 70 75 70 70	46 48 50 45 50 57	83 79 74 80 79 79	42 45 50 44 49 56	73 76 75 73 75 80	59 64 65 60 63 66	78 78 77 78 73 73	35 38 41 41 42 45	83 85 83 81 83 87	47 53 55 55 55 55	76 74 64 73 72 68	46 48 44 45 58 50
Means		53.9	81.0	57.1	78.2	58.9	79.8	56.7	83.2	58.8	83.9	58.7	81.5	59.7	82.2	55.7	82.6	56.7	80.8	67.3	79.7	53.3	86.9	59.6	77.0	56.8

•, b, e, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 8, TEXAS AND RIO GRANDE VALLEY.

B. BUNNEMBYER, District Editor.

GENERAL SUMMARY.

The mean temperature for the district as a whole was nearly normal, with a large per cent of sunshine, and conditions generally were favorable for field work. The first week was exceptionally warm, after which the usual changes of temperature incident to the season occurred. Dense fogs occurred at many New Mexico stations during the last week. The precipitation was decidedly in excess of the normal throughout the northwestern portions of the district and generally deficient in southern New Mexico and in Texas. Unusually heavy rains occurred on the 4th and 5th over the upper Rio Grande Valley, which caused a serious flood in that river, with much loss of property and some loss of life. A special report of this flood will be found elsewhere in this summary. From the 6th to the 25th there was a period of almost uninterrupted sunshiny weather in New Mexico and Colorado, which was followed by rainy weather that lasted until the 31st. In Texas the precipitation occurred at more or less irregular intervals throughout the month. The average number of days with 0.01 inch or more of precipitation was 6 in Colorado and 5 in New Mexico and Texas.

was 6 in Colorado and 5 in New Mexico and Texas.

The greatest and least monthly amounts of precipitation in Colorado were 6.28 inches at Cumbres and 1.12 inches at Garnett; in New Mexico, 6.86 inches at Harveys Upper Ranch and 0.30 inch at Agricultural College and at Orange; and in Texas, 7.75 inches at Port Arthur, while practically none occurred at 9 stations, mostly in the western part of the State. Excessive precipitation of 2.50 inches or more in 24 consecutive hours occurred at 3 stations in Colorado, 4 in New Mexico, and 14 in Texas, the heaviest being 6.75 inches at Eagle Pass, Tex., on the 12th and 13th.

Snow fell on several days in the northwestern portions of the district, the depth of fall increasing from a fraction of an inch in northwestern Texas to 3 feet in the northern mountains of New Mexico. Over the lower levels the snow disappeared rapidly, but in the higher mountains the depth of snow at the close of the month ranged from 1 foot in the more exposed places to 3 or 4 feet in the timber and in the gulches.

TEMPERATURE.

The monthly mean temperature was 0.6° above the normal in Colorado and 1.5° below in New Mexico, and averaged about normal in Texas. The month opened unusually warm, and warm weather continued until the 6th, when a moderately cool spell gave relief from the protracted heat. Warm weather occurred again from the 10th to the 16th, but during the latter part of the month the temperature averaged below the normal. The coldest weather of the month occurred from the 21st to 23d, when freezing temperatures were recorded in the greater portion of the district. The diurnal range of temperature varied from 10° on the upper Texas coast to 38° in the extreme northern portion of the district.

The highest and lowest temperatures reported were: In Colorado, 77° at San Luis on the 3d and -4° at Hermit on the 21st; in New Mexico, 97° at Carlsbad on the 3d and 4° at Red River Canyon on the 19th and 20th; and in Texas, 104° at Fort McIntosh on the 2d and 24° at Fort Stockton and Marathon on the 22d. The local monthly means ranged from 37.7° to 46.2° in Colorado; from 41.7° to 63.7° in New Mexico; and from 58.8° to 75.6° in Texas.

PRECIPITATION.

Unusually heavy rains occurred over the upper reaches of the Rio Grande watershed and over a limited area in the lower valley from Eagle Pass, Tex., southward to Fort McIntosh. Over a long stretch extending from Alamogordo, N. Mex., to Fort Clark, Tex., and in the extreme lower valley the precipitation was less than normal, portions of the valley in Texas between El Paso and Del Rio receiving no moisture. The average for the watershed was 2.13 inches. While the greatest monthly precipitation, 7.68 inches, occurred at Eagle Pass, Tex., a large number of stations in the upper watershed had from 4 to 5 inches. There was no precipitation at Marfa and Valentine, Tex., and a trace only at Marathon, Tex.

The precipitation over the Rio Pecos watershed was generally deficient, although it was exceptionally heavy over the extreme upper portion, which brought the average for the watershed up to 1.45 inches. There was very little precipitation south of Carlsbad, N. Mex., and practically none at Theodore, Grand Falls, and Fort Stockton, Tex. The greatest monthly amount was 6.86 inches at Harveys Upper Ranch, N. Mex.

Although the Texas watersheds showed a decided improvement over the conditions reported for September, the precipitation was generally below the normal. Some heavy rains occurred over the upper portions of the Nueces and San Antonio drainage basins, over portions of the coastal plains, and over a few limited areas in the remaining watersheds except that of the Trinity. The following are the average monthly amounts in inches for the various watersheds: Nueces, 2.81; San Antonio, 2.52; Guadalupe, 2.61; Lavaca, 2.44; Colorado, 2.24; Brazos, 1.83; Trinity, 1.84; Neches, 2.84; Sabine, 2.30; and coastal plains, 2.89. The greatest monthly amount was 7.75 inches at Port Arthur in the upper coastal plains, while practically no precipitation occurred at Eola in the Colorado watershed and at Hamlin in that of the Brazos, and at Harlingen in the coastal plains.

RIVER CONDITIONS.

There was ample water in the Rio Grande and in the Rio Pecos for irrigation purposes. In fact, the upper Rio Grande was at flood stage after the heavy rains of the 4th and 5th, and sharp rises occurred in the lower portion of that stream from the 13th to 16th after excessively heavy rains at Eagle Pass, Tex., and surrounding sections on the 12th and 13th.

The Texas streams were unusually low throughout the month, and no rises of consequence occurred. The Guadalupe, the middle Colorado, and the middle Brazos were the lowest of record for October.

MISCELLANEOUS.

Frosts.—Killing frosts occurred at the higher northern stations in New Mexico from the 6th to 8th, but a general killing frost did not occur over the northern counties until the 16th, and over the central and southern counties until the 22d. In the Texas area the first general frost was delayed until the 22d, although in a few northwestern and western localities the first frost of the season occurred on the 20th or 21st. The frost of the 22d was killing in northwestern and western counties, and heavy to light in northeastern, eastern, and southern counties. There was no frost, however, in the lower Rio Grande Valley and along the Gulf coast.

Local storms.—A destructive wind and rainstorm occurred at Eagle Pass, Tex., at 10 p. m. of the 12th. It was preceded by much sultry weather. The storm came from the west and the wind blew at an estimated velocity of 50 miles per hour. The accompanying precipitation was torrential, 6.75 inches falling in about 8 hours. A reservoir valued at \$15,000 was demolished, and 300 houses in Porfirio Diaz, Mex., across the Rio Grande, were washed away, rendering 1.500 people homeless.

washed away, rendering 1,500 people homeless.

A violent local storm, probably tornadic in character, occurred at Thelma, Tex., on the 30th, and demolished the schoolhouse, several dwellings and barns, and injured two farmers, who were blown from their wagons. Trees were uprooted and all crops in the path of the storm were destroyed.

THE FLOOD IN THE RIO GRANDE.

By FREDERICK H. BRANDENBURG, District Forecaster.

Torrential rains over the drainage basin of the Rio Grande from its head in the San Juan Mountains almost to El Paso, Tex., on the 4th and 5th of October, 1911, caused a severe flood in its upper reaches and very high water for several days in the lower part of the river.

The San Luis Valley is rarely visited by heavy rains; in fact this region is one with the lightest rainfall in Colorado. While heavy precipitation occurs nearly every year over the higher part of the watershed, it comes principally in winter in the form of snow, and such freshets as occur result from a too rapid melting of the snow. As a rule little or no damage results from this cause in the upper part of the drainage basin.

upper part of the drainage basin.

The rainfall on the 4th and 5th was heavy. At Wagon Wheel Gap Experiment Station, maintained by the Weather Bureau in cooperation with the Forest Service, elevation 9,235 feet, rain began at 5 p. m. October 4 and continued steadily until 4 p. m. of the 5th, after which

light rain fell until midnight of the 5th. The total fall at the station was 2.65 inches, while near by at the mountain top station, elevation 10,956 feet, the total fall was 3.62 inches, showing a marked increase with elevation. Mr. Peter Keplinger, of the Forest Service, in crossing the Continental Divide, from the San Juan country, found trees estimated at 50 years old uprooted by the flood in small ravines. In the northern part of the San Luis Valley the precipitation was not excessive, but in Costilla County, on the east side of the Rio Grande, the amounts ranged from 1.90 at San Luis to 3.13 inches at Blanca. The rainfall was very heavy also along the Conejos, the most important tributary of the Rio Grande in Colorado; at Platoro, on the upper part of this watershed, the rainfall for the two days was 3.30 inches. The average rainfall, at five stations along the Chama in north-central New Mexico was 2.95 inches, with the greatest amount, 4.34 inches, at Cumbres Pass, near which place the Chama has its beginning. Heavy rainfalls also occurred along the trunk stream as far south as the center of the State.

The damage was mostly confined to San Luis Valley, the destruction beginning in the upper part of the valley. Towns were inundated, bridges, houses, and barns were carried away, but there was no loss of life. The ranchmen were heavy losers, but the principal damage was to the railroad. Practically all wagon bridges were washed away and the roads left in an impassable condition.

The loss, exclusive of that sustained by the railroad, is estimated at about \$100,000.

In Rio Grande County 8 wagon bridges were washed away, 5 miles of railroad track ruined and about 50 miles damaged, and hundreds of head of cattle and hogs were lost. The river spread out, and in places was from 2 to 4 miles wide. The State bridge above South Fork withstood the flood, but one steel bridge was carried out and also the State bridge under construction at Seven-Mile Plaza. In Alamosa the principal damage resulted from the breaking of a dike and the inundation of 30 city blocks

The Conejos, which joins the trunk stream near Antonita, carried away tons of hay and field peas and acres of potatoes, besides drowning large numbers of live stock. All the bridges along the Conejos and Alamosa were carried out.

In New Mexico where the river bed of the trunk stream is of greater capacity, the damage was not so serious, the flood not reaching the proportions of that of last July. The breaking of the river bank about 28 miles above El Paso caused a damage of about \$4,000. About 25 miles below El Paso the water encroached on the Galveston, Harrisburg & San Antonio Railroad right of way, necessitating much reinforcing of the roadbed.

At Espanola the highest stage, 8.4 feet, occurred on the 6th; at San Marcial, 14.3 feet, on the 7th; and at El Paso, 16.5 feet, on the 13th.

TABLE 1.—Climatological data for October, 1911. District No. 8, Texas and Rio Grande Valley.

			years	Tem	peratur	e, in	degre	ees Fal	hren	heit.	Pre	elpitatio	n, in i	nches.	lays, re.		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, 3	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainydays, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Colorado.	Costilla	7,865	2																	Dr. L. C. Audrain.
Cumbres	Conejos	10,015 7,576	2 4 18	43.8	+ 1.5	76	1	13	22	50	6.28 1.12	+ 0.52	3.08 0.74	17.0 5.0	7 4	13	9 8 2	9 7	sw.	Mrs. Ida M. Lively. Chas. Speiser.
Hermit La Veta Pass	Hinsdale	9,843 9,000	1					- 4	21		3.38	******	2.06	8.0	5	20		9		Marion Mason. Clara M. Wright.
Manassa Platoro	Conejosdo	7,700 9,675	5 4	43.2				0a	21	48*	4.99		1.28 3.25	16.8	13	20	3	6 7	sw.	J. B. Chapman Walter R. Hook.
Saguache San Luis Wagon Wheel Gap Ex-	Saguache	7,740	19 20	44.4	+ 1.1	77	13+	9 3 6	21 21 21	46 51	2. 20 3. 20	+ 1.48 + 2.26	1.20	7.0	8	22 18	2 7	6	w. sw.	Eugene Williams. P. B. Albright.
Wagon Wheel Gap Ex- periment Station.	Mineral	9,235		37.7		63	13	6	21	37	3.61	*******	2.60	7.8	6	19	5	7	nw.	U. S. Weather Bureau.
New Mexico.		123																		
Agricultural College Alamogordo (near)	Dona Ana Otero	3,863 4,338	49 10	60.6 59.5	- 1.4 - 0.8	89 90	1†	30 23	22 23	43 50	0.30 1.46	- 0.39 + 0.71	0. 12 0. 75	0	6	12 14	19 11	6	sw.	Agricultural College. Charles Sutton.
Alamogordo	Sandovál	4,320 7,800	1								1.25 5.81		0.60 3.48	0	6	22	0	9	sw.	Agent E. P. & S. W. R. R. Harold H. Brooks.
Albuquerque	Bernalillo	5,000 6,112	35					21	21		3.30	+ 2.58	1.84	0	6	21	6	4		Pitt Ross, C. E. Agent E. P. & S. W. R. R.
Anchor Mine	Taos	10,600	4				15	25	22	54	4.49 0.92		1.07 0.60	38.0	9	13 21	10	8 5	e. se.	Charles H. Brigham. Will Benson, C. E.
Artesia Aspen Grove Ranch	Rio Arriba	9,000 8,900	2 2								4.53		1.73	9.3	7 7	15 18	12	4 7	w.	Junius D. Maupin. John W. Bateman.
Bateman's Ranch Berino	Dona Ana	3,788									0.62		0.23	T.	5 3	19 18	8	4	e.	C. A. Thompson.
Bluewater Boaz.	Valencia Chaves	4, 154	9 2	48.1 57.1	- 0.2	82 91	17 2	15 26	19 22	54 52	1.89	+ 0.83	1.29	2.0	4	20	8	5	sw.	Bluewater Development Co D. C. Savage.
Capitan	Lincoln		16	63.7	+ 0.3	97	3	26	22	53	0.84	- 0.86	0.53	2.0	5 2	15 21	7 4	9	n. se.	Agent E. P. & S. W. R. R. U. S. Reclamation Service.
Carrizozo	Rio Arriba	5,429	3 12	55.9	- 4.5	82	3† 13	26	22 21	39 42	0.69	+ 2.66	0.30 2.30	11.0	5	22 22	9	0	SW.	Agent E. P. & S. W. R. R. Frank C. Johnson.
Clouderoft	Otero	8,650 6,666	8 2	46.6		74	8	20	20†		1.80 0.83	+ 0.29	0.79	T. 1.0	5 3	22	5 15	4 7	sw. se.	Agent E. P. & S. W. R. R.
Corona	Lincolndo	5,800	2								1.20		0.47	T	7 5	21 19	1	9	sw.	Do.
Cundiyo Demonstration Farm	Santa Fe	6,889	2 2								2.51 2.65		0.91 1.22	4.0	6		4	8	W.	Juan Vijil. Erb & Westerman.
Duran Escondido	Torrance	6,272	2 2				2				0.45 1.05		0.35	2.0	2 4	24 24	6	1	sw.	'Agent E. P. & S. W. R. R. Do.
Espanola Estancia	Rio Arriba Torrance	5,590 6,140	13	49.8	- 2.0	79	3	21 26	25 31	47 38	3.64	+ 2.61	2.00 0.26	2.0	7 10	18 12	6 12	7	9. e.	Mrs. Ella F. McBride. Agent N. Mex. Central R. R
Fort Stanton	Lincoln	6,231	33	51.1	- 0.7		2†	18	23	49		+ 0.92	1.01	0.5	6	20	4	7	W.	U. S. Sanitarium. F. A. Manzanares.
Fort Sumner	Guadalupe Lincoln	3,960 6,635	3 2							****	1.03		0.88	0	2	20 20	5	6	w.	Agent E. P. & S. W. R. R.
Gallinas Planting Sta Glorieta Ranch	San Miguel	7,500 5,700	1				1†	13	21	43	3.42 2.51		2.69	7.0	5	24	0	9	n.	U. S. Forest Service. Charles M. Crossman.
Harvey's Upper Ranch. Hillsboro	Socorro San Miguel Sierras.	9,400 5,224	13							****	6.86	*******	2.71	31.0	9	16	10	5	SW.	Simon B. Warner. Dr. F. I. Givens.
Hondo Reservoir Jemez Springs	Chaves. Sandoval	3,904 6,100	2 2 2	58.5		92 74	2 2	25 24	22 21	50 37	0.88 5.19		0.40 3.20	T. 3.0	6	22 15	5	11	se. sw.	U. S. Reclamation Service. Linus L. Shields.
Knowles (near)	Eddy	4,300	2	59.6	******	92	2	23	22	60	0.51		0.39	0	3	22	4	5	sw.	J. W. Mosley. Gus Weiss.
Laguna Lagunita	Valencia Guadalupe	5,840 4,500	6													200				P. A. Turnbull.
Lake Valley Lakewood	Sierra Eddy	5,412 3,170	6								1.96			0	5	22	8	1	sw.	William P. Keil. Miss Josephine Knapp.
Las Vegas Liston	Eddy San Miguel Chaves.	6,385 5,000	24	47.4	- 2.3	78	2	18	21	44	2.83	+ 1.73	1.45 0.71	5.0	6 3	22 17	3 7	6 7	s. sw.	N. Mex. Normal University H. G. Liston.
Los Lunas (near) Magdalena	Valencia	4,900	21 6		- 1.1		1 2	22 21	221	47		+ 2.34	1.32	0	5 6	20 22	6	5 3	w	Richard Pohl. William Pender.
Mescalero	Otero	6,627 7,050		50.6		77	2†	20	22 22	37	1.89		0.77	T. 7.5	6 5	22 12	3 13	6	sw. w.	Rev. R. H. Harper. W. M. Nelson.
Mineral Hill Monterey	San Miguel Otero	4,436	6 2								0.72	+ 0.78	0.42	1.2	5	20 15	7 9	4 7	sw.	Agent E. P. & S. W. R. R. Miss Julia Hill.
Mountainair Newman	Torrance	6,547 3,989	10 2		- 0.6	90	3	20 28	20 22	44	0.31		0.25	0	5 2 3	24 24	5 2	2		Agent E. P. & S. W. R. R.
Noria Orange	Dona Ana Otero	4, 114 5, 000	2				4	32	221		0.30	*******	0. 22 0. 30	0	1			5	W.	J. Brownfield, jr.
Orogrande	Lincoln	4, 171 5, 016	2 2				2†				0.74	******	0.67	0	6	22	7	2	w.	Agent E. P. & S. W. R. R. Eugene F. Jones.
Otis	EddySanta Fe	3,100 6,200	2 2					•••••			0.75 3.06		0.30 1.05	0.4	8	24	4	3	9.	A. M. Hove. O. H. Johnson.
Pastura	Guadalupe Bernalillo	5,285 8,000	2			78	1†	28 16	27 21	34	1.56 3.65		1.05 2.06	1.5	7 5	18 23	5	8 7	8. W.	Agent E. P. & S. W. R. R. George C. Ellis.
Placitas (near)	Chaves	4,300		59.8			11	25	22 19†	50 54	1.94		0.89	2.0	6 7	20 19	6	5	е.	L. P. Adair. Mrs. L. R. Penn.
Red River Canyon Rincon Rio Grande Dam	Taos Dona Ana	8,956 4,030	13	46.1 60.2	+ 0.2	92	2	23	22	51	0.38	- 0.06	0.38	0	1 2	17 27	10	4	8.	C. H. Raitt. U. S. Reclamation Service.
Rio Grande Dam Rio Grande Industrial	SierraBernalillo	4, 265 5, 000	13	61.9 53.3	- 2.7	90 85	1 2	23 30 21	22 23 22	43 52	3.66	+ 0.24	0.64	0	4	24	3	6	ne. s.	Rev. A. C. Heyman.
School. Rosedale	Socorro	6,910	6	50.2		74	2†	21	21	32	1.77		1.00	_0	5 7	24	4 9	3	w.	Mrs. J. J. McInness.
Roswell	Chaves	3,578 4,439	13	57.2 56.5	- 2.3 - 1.3	92	2 2	26 28 19 21	22 22 21	51 42	1.14	-0.38 + 0.46	0.44	T.	7 5	17 23	4	5	w. ne.	U. S. Weather Bureau. Agent A. T. & S.F. R. R.
San Rafael	Valencia Santa Fe	6,509 7,013	7 38	50.8	- 3.2	82	1 2	19	21	42 53 34	2.08	+ 2.06	0.98	6.0	8	23 22	2 4	6 5	sw. ne.	Dr. Charles M. Grover. Section Center.
Santa Fe Canyon	do	8,000	1				2		22	49	3.77	+ 0.50	1.30	1.0	5 4	21 18	13	8	w. w.	C. Martines. John L. Chapman.
Santa Rosa	Guadalupe Socorro	4,624	11 19		- 2.5		4	23 24	21	48	2.29	+ 0.95	1.24	23.0	6 10	25 17	2 4	4	n. sw.	J. J. Leeson. Frank Hamm, jr.
South Fork Stanley	Taos	8,405 6,317	2								4.98		1.70							H. Winan.
Strauss Taft	Dona Ana	4,080 5,000	12								1.45	- 0.29	0.33	3.0	2	25 20	3	3 7	e. 8.	Agent So. Pac. Ry. J. F. Nappier.
Tajique Taos	Torrance	6,900 6,983	13		- 0.9						2.58	+ 2.41	1.50 1.38	4.0 T.	10	19 20	8 5	6	sw.	U. S. Forest Service. Alexander Gusdorf.
Taos Canvon	do	8,952	2 2		- 0.0						3.02		1.21	9.0 T.	11 4	20	5		w.	L. Martinez, jr. Agent E. P. & S. W. R. R.
TecoloteThree RiversTijeras Canyon	Otero	4,559	2								0.87		0.58	0	5	22	3			Do. U. S. Forest Service.
	Bernalillo	at 914				1		the section is not												Agent E. P. & S. W. R. R. U. S. Forest Service.

TABLE 1 .- Climatological data for October, 1911. District No. 8-Continued.

			years.	Temp	erature	, in d	legre	s Fah	renh	eit.	Prec	ipitat.on,	in inc	hes.	lays,		Sky.		direc-	
Stations.	Countles.	Elevation, feet.	Length of record, 1	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing wind d	Observers.
New Mexico-Contd.																				01/01/01/01
Fruchas Fularosa		4 436	3	43.6		68	14	13	21	30	3. 11		1.20	7.2	9	12	12	7	w.	Miss Ruth Rendon. Irby L. Fairless.
VaughnVirsylvia	Guadalupe	5,952	3 2 1	46.6		80 79	1	26	21	42	0.84 3.38		0.27 1.80	6.0	5 8 9	17 21 18	8 2 3	8	w. sw.	Agent E. P. & S. W. R. H
Winsors	Taos San Miguel	7,500 8,200	13	41.7	- 0.3	68	2 3†	10 12	22 21	43	4.56	+ 2.72	2.24	6.0	9	18	3	10	W.	Irby L. Fairless. Agent E. P. & S. W. R. H. Dr. I. N. Woodman. Henry D. Winsor.
Tezas.																				
	Toylor	1 720	26	64.7	+ 0.5	04	3	32	22	34	1.37	- 0.96	0.73	0	5	16	8	7	s.	If & Weether Duren
bilene	Shackelford	1,429	17	63.4	- 1.1	96	11	31	24	46	0.98	- 1.10	0.65	0	3					U. S. Weather Bureau. N. L. Bartholomew.
Alice	Jim Wells Brewster		1	73.6			3	40	23	35	1.45		0.75	0	5	20	10 5	12	n. sw.	R. M. Boerum. J. Frank Dobie.
lvin	Brazoria	49	13	70.4			4	40	22		2.59	- 2.23	1.20	0	3	15	6	10	n.	Alvin Japanese Nursery.
nahuacntelope			2								4.05 0.30		1.55 0.22	0	7 2	22	7	2	******	B. H. Collins. Chas. C. Hawkins.
spermont	Stonewall		55					20		28	0.40	- 0.56	0.40	0	1 9	21 17	3	6	S.	Bryant Link Co.
Ballinger	Runnels	1,637	15	67.8	- 0.3 - 0.5	95 98	6	39 28	22 22 22	40	3.39 2.20	+ 0.02	1.33 2.10	0	2	15	6	11 10	S.	A. Deussen, E. M. Eubank.
Barstow	Ward	2,573	1	67.4		99	3	26	22	51	0.15 5.29	******	0.15	. 0	1 5	25 16	6 3 2 0	3 13	e. n.	Lee F. Freeman. E. C. Quereau.
Beaumont	Jefferson	29	10	71.2	- 0.2 + 1.9	96	1	41	24	36	5.73	+2.90	2.38	0	5 9	15 25 16 17 13		14	ne.	John Bender.
See ville		225 2,396	15 13	65.8	+ 1.9	96 96 98 97 97	2	41 36 27 34 32	24 23 22 23 22	42 43 41	0.82	- 1.69 - 1.89	0.20	0	7 2 6	18	6 9	12	n. s.	L. E. Dickey. B. Reagan.
Blanco	Blanco	1,350	15	67.4	+ 0.4 + 0.3	97	4 3	34	23	41	2.24	-0.83	1.08	0	6	12	16	3 9	S.	R. C. Crist. F. W. Schweppe.
Booth		1,412	19 10	07.0	+ 0.3	97	3	32	22	43	1.97	-1.01 + 0.92	0.78	0	7	11 18	11 0	13	n. n.	F. W. Schweppe. T. R. Booth.
Bowie	Montague	1,113	16	67.2	+ 0.8	99	4	35	22	40	0.50	- 2.49	0.32	0	3	19	5	7	n.	Craig Anderson. G. W. Virling, jr.
Brady	McCullough Brazoria		10 22	72.4	+ 2.2	93	7	37	23	39	3.84	- 0.21	1.28	0	9	18	7	6	n.	Mrs. M. A. Stevens.
razos	Palo Pinto	801	2								1.03		0.72	0	3 7	16	8	6 7	n.	Robt. E. Boyett. Mrs. B. F. Sloan.
renham			26	69.8	0.0	98	3†	41	22†	34	0 36	+ 0.13	0.89	0	2	15 15	5	12 11	n. s.	Mrs. B. F. Sloan. Claude Strange.
righton	Nueces	12	18	75.6	+ 1.4	94	41	39	23	36	0.50	- 1.43 - 2.55 - 1.17	0.30	0	3	21	2	8	ne.	G. H. Ritter.
rownsville	Cameron	38 1,342	19	65.4	+ 0.9	99	14 2	39 44 29 37 33 30	23 22 22	35 45	0.86	- 2.55	0.24	0	6	12	17	2	se. n.	U. S. Weather Bureau. Mrs. Pearl Smith.
ameron	Milam		3	68. 68.8		98	41	37	22 23	41	1.32	******	0.45	0	4	25 18	5	2	S.	J. E. Watts.
armonalayton ville	Fisher	2,100		65.2	+ 1.6	95	1	30	23	37	0.89	- 1.56	1.29	0	7 2 6	11	12	8	s. se.	M. S. Spitler. Wm. Lanius.
lifton	Bosque	671	17		+ 2.2	95	3†		22	97	2.17	+ 1.20	1.17	0	6 5	12 12	12 13	2 2 8 8 7 6	s. n.	R. M. Jones.
olemanollege Station	Brazos	308	21 17	70.4	+ 1.0	98	4	38	22 22 22	32	3.55	+ 0.72	1.11	0	9	12	9	10	8.	J. E. Stevens. Prof. G. S. Fraps. R. M. Webb.
olorado	Mitchell	2,066	17 22	65.0	$+1.0 \\ +1.4$	96 94	1 1	29 35	22 23	48	0.32	-1.41 + 0.39	0.22 2.00	0	5	21 20	10	6	S. S.	R. M. Webb.
columbus	Colorado	.] 206	7								3.74	7 0.00	1.46	0	7	14	3	14	n.	R. B. Loggins. Mrs. Sophie Bridge.
orpus Christi	Nueces	20 445	24 22	73.6	+ 1.0	89 98	7 3	47 36	22 22	22 36	0.86	- 1.19 - 1.82	0.52	0	12	13 13	10	8 9	n. s.	U. S. Weather Bureau. D. H. Winn.
otulla	La Salle	425	4								1.05		0.80	0	2					Holland Agr. Co.
rockettuero		350 177	7 21	69.5	+ 0.6	100	6	35 39	22 23	36 41	2.95	+ 0.67	1.11 2.07	0	8	20 14		9	S. S.	A. M. Rencher, H. R. Frobese,
Dallas	Dallas	466	22	67.2	+ 1.3	99	4	33	22	46	2.08	- 0.44 - 2.27	1.02	0	6	12	0	19	S.	G. A. Eisenlohr.
anevang	Wharton	1,047	15 15	72.2	+ 1.3	95	4†	36	22	38	2.15	- 2.27	1.45	0	3	22	4	5	n.	H. P. Hermansen. Ft. Worth & Denver City
DecaturDel Rio	Valverde	952	5	70.8	+ 0.9	97	3	34	23	39	1.11	- 0.38	0.70	0	5	9		7	se.	U. S. Weather Bureau.
Devine Dialville	Medina Cherokee,	653 575	7	67.9		99	11	37 36	22 22	42 31	1.97 2.13		1.10	0	3	17 17	6	7 8 8	se. n.	M. A. Keller. J. M. B. McKnight.
Oilley Oublin	Frio	569	1 15								1.55		0.50	0	4					J. M. B. McKnight. John W. Miller.
Ouval	Travis		22	68.8	$+1.0 \\ -1.3$	97 95	3†	34 39	22	31	3.50	-1.79 + 0.50	0.49	0		14 18				Jno. O. Shafer. J. C. Edgar.
Eagle Pass	Maverick Eastland	800 1,420	34	72.4 66.0	+ 0.9	98 95	2† 16	33 31	23 22	40 54	7.68 1.65	+ 6.10	6.75	0	4	14 12	12	5 16	Se.	Charles Tarver. J. R. Gilbreath.
dna	Jackson	71	2								1.19		0.58	0	5					E. L. Faires.
Paso		3,762 558	32	63.3	+ 0.9	91	2	35	22	38	0.43	- 0.52	0.38	0	5	21	8	2	e.	U. S. Weather Bureau. H. C. Braden.
ola	Concho				1 0 7						Т.		Т.	0	0					E. W. Neal.
airland	Brooks	1,000	22	74.6	+ 2.8	100	8	34 35	22 23 22 22	451	1.80 3.61	- 0.22	0.72 1.89	0	8	20 19	3 6	8	s. se.	R. L. Bush. W. A. Gardner.
latonia	Fayette	465	3	70.8		96	41	39	22	33	4. 24		2.15	0	7	15	6	10	n.	Fred W. Laux.
lint	Flovd	483	1	67.8		97	3†	36	22	38	3.89		2.35	0	5	18	4	9	n.	F. C. C. Carter. F. H. Schmidt.
ort Clark	Kinney	1,050	40	65.6	- 4.3 + 1.8 + 2.3	98	3	38	24	35	1.54	-0.35 + 1.91	0.80	0	4	8	10	13	n.	Post Hospital.
ort Stockton	Pecos	3,050	14	66.6	+ 2.3	104 102	3 2 3	40 24 36 34 35	23 22 22 22 22	40	3.07 T.	- 1.34	1.00 T.	0	5	12	8 20	11 2	e. s.	Do. H. H. Butz.
ort Worth	Tarrant	670 1,742	16 22	66.2	- 0.1 + 1.1 + 1.6 + 0.3	95 92	1 3†	36	22	35 37	0.99	- 1.34 - 1.52 - 0.78 - 0.87	0.37	0	5 5	12 13	13 11	6 7	s. n.	U. S. Weather Bureau. Arthur Striegler.
ainesville	Cooke	738	21	66.9	+ 1.6	97	4 3	35	22	40	2.47	- 0.87	1.75	0	4 9					J. L. Hickson. U. S. Weather Bureau.
alvestonatesville		69 795	40	62.2	+ 0.3	88 95	3	49 34	22 22	26 40 f	5.92 2.25	+ 1.74	1.87	0	9	16	4	11	n.	U. S. Weather Bureau.
eorgetown	Williamson	750	16	66.8		96	4	35	23	44	2.08	- 1.03	0.80	0	10	15	9	7	S.	John Ryan. Prof. R. F. Young.
onzalesorham	Gonzales McLennan	299 444	6 2				****	36			3.09		2.30	0	3	16 23	1 5	14	n. s.	J. M. Johnson. John Gorham.
raham	Young	1,040	12	1	+ 3.7	98	6	39	17†	483	0.53	- 1.88	0.27	0	3	24	2	5	S.	C. W. Johnson.
rand Falls	Van Zandt	399	1		******			*****			0.00 3.20		0.00	0	0 4	14	21 12	5	80.	W. A. White.
rapevine	Tarrant	670	21	69.3	+ 1.6	98	1†	41	31	38	0.97	- 2.04	0.52	0	5 3	14	10	5 7	n.	W. J. Crowley.
reenville	Lavaca	550 235	11 19	70.3	- 0.3	94	5†	37 40	22 23	30	1.13 3.70	-2.76 + 0.51	0.63	0	3 5	15 17	0 2	16 12	se. n.	W. J. Crowley. J. P. Regan. Dr. J. E. Lay.
[amlin	Jones	1.685									T.		T.	0	0	27				
Tarlingen	Gillespie						****				0.00 2.74	******	0.00	0	0	17	0	14		Dr. C. W. Letzerich. Christian Fritz.
[askell	Haskell	1,553	16	65. 6	0.0	99	5	35	21†	40	0.27	- 1.44	0.25	0	2	20	6	5	8.	P. D. Sanders.
Iebbron ville Iempstead	Waller	254	7				****	*****			1.80		0.90	0	5	12	7	12	n.	Henry Edds. J. H. Hancock.
Ienderson	Rusk	. 500	2								1.58		0.78	0	4	18	3	10		J. H. Hancock. M. Kangerga.
Iewitt	Hamilton		16					*****		****	5. 26 0. 89	+ 1.91	2.45 0.30	0	6	16	8	7	n.	John A. Eakins.
Hillsboro	Hill	628	8	70.4		99	51	30	22 22 22	40	0.36		0.18	0	2					W. G. Escott. H. E. Haass.
ondo	Medina Harris	901	12 21	69.8	+ 1.3	97	3	38 43	22	35	5.12 4.72	+ 2.87	2.55	0	6 9	15	7	12	se. n.	H. E. Haass. U. S. Weather Bureau.

TABLE 1 .- Climatological data for October, 1911. District No. 8-Continued.

			year	Tem	peratur	e, in	degre	es Fal	hrenh	eit.	Prec	eipitation	ı, in in	ches.	days,		Sky	•	direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	20	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	77	Observers.
Texas-Continued.											7									
untsville	Walker	400		67.8	- 0.5	96	5	38	22	33	1.78	- 1.33	0.42	0	5	19	0	12	ne.	W. Y. Barr.
yton			7	68.0		101	3	36	22	39	2.97		1.04	0		20	4	7	n.	Wichita Valley Ry. Co. Earle Adkisson.
netion	Kimble	1,645	10	65. 2	+ 0.6	96	41	36 30 35 30	22 23 22	45	2.05	+ 0.50	1.15	0	4	15	4	12	n.	Judge John S. Durst.
aufman	Kaufman	1,650	12 15	67.9	+0.6 + 1.8	97	3†	35	22	34 45	2.39 0.95	- 1.58	1.05	0	4	21 12	12	5 7	n. n.	B. J. Hubbard. Robert E. Horne.
errville nickerbocker	Kerr Tom Green	2,050	7	65.7	+ 1.6	98	6	28	22† 22	43	2.14	- 1.00	1.37	- 0	5	18	5 3	8	ne.	Jos. Tweedy.
opperl	Bosque	576	14								0.10	- 3.49	0.10	0	1	13	3	15	n.	T. A. Johnson.
grange	Fayette	276	1	*****				• • • • • •			3. 42 0. 43		1.60	T.	5 2	19	0	12	se.	August Hermes.
mesampasas	Lampasas	1,026	19	67.0	+ 0.5	99	3	33	23	46	1.52	- 1.31	0.60	0	7	23	2	6	n.	S. D. Austin. Mrs. K. I. Webber. Jno. G. Kenedy.
Parraureles Ranch	Cameron	38	9								6.70	- 1.31 + 4.33	6.70	0	1					Jno. G. Kenedy.
berty	Liberty	20 38	11 7	70.4		94	1†	36	23	37	2.82		0.65	0	8	21	3	7	n.	Matt Cody. Mrs. Fannie Sneed.
ano	Llano	1,040	20	68.4	- 0.2	97	3+	36 37	22	39	2.38	+ 0.26	1.22	0	7	18	9	4 3	e.	E. W. Torrence. M. D. Wardlow.
ano Grande	Hidalgo	86	3	73.6			4	33	23	50	0.30		0.30	0		18	10		8e.	M. D. Wardlow. Geo. W. Ellis.
ng Lake	Anderson	229 336	25	68 2	+ 2.0	96	3†	38	22†	37	2.53	- 1.42	1.09	0	7 5	14	3 2	14	n. se.	C. A. Propst.
ngviewbbock	Lubbock				2.0						1.08		0.41	4.1	5	22 22	4	5	sw.	A. L. Paschall.
fkin	Angelina	325	4	68.0	- 0.3	96	4	35	23	40	3. 10	0.00	2.63	0	3	22 11	0 7 2 11	13	n.	T. A. King. John Carter.
dingGregor	Caldwell McLennan	418 713	22	70.0	- 0.3	96	3+	40	23	32	1.79 3.23	- 0.66	0.46	0	9	21	2	8	n. n.	W. H. Whitley.
rathon	Brewster	4,043	i	59.8		89	3	24	22	36	T.		T.	0	0	10	11.	10	S.	Rev. A. P. Willis.
rathonble Falls	Burnet	771	3								3.90		1.20	0	7	11	5	15	n.	R. H. Cochran. R. K. Colquitt.
rfarshall	Presidio	375	3 2	87.8		97	4	35	22	40	0.00		0.00	0	0 2	5	19	7	se.	Lee Scott.
tagorda	Matagorda	12	1	94.0							5. 15		3.00	0	4	24	19	0	8.	W. E. McNabb.
xia	Limestone	537	7	66.0			4	35	22	36	1.66		0.75	0	7	10	7	16	n.	Miss Josephine Newman, W. H. Neeb.
dland	Midland Hidalgo	140	4				2 1†	26 40	22 23	48	0.10		0.05	0	3 5		16	5 3	ne. se.	Glenn Perryman.
ssionnt Belvieu	Chambers	65	i	10.0		90		*****			2.91		1.63	0	5	8 5	20 10	16	n.	A. R. Shearer.
untain View	Pecos	2,900	1								0.07		0.04	0	3					Lucius W. Gosselin.
unt Blanco	Nacogdoches	2,750 271	22 12	67.1	-0.7 + 1.0	94 96	3	28	22	46 37	1.72	- 0.39 - 1.57	0.85	0	3	15 15	8 7	8 9	s. n.	H. C. Smith. Miss Mary Hofmann.
cogdochesw Braunfels	Comal	720	22	68.0	- 0.9	94	3	28 35 37	22 23 23 22	35 28	3.17	+ 0.81	1.15	0	7	12	12	7	ne.	J. Giesecke
lestine	Anderson		29		-0.9 + 0.7	94	3	38		28	3.04	- 0.56	1.64	0	3 7 8 4	14	8	9	ne.	U. S. Weather Bureau. E. H. Snider.
nterarsall	Frio	1,000 629	22							****	$0.76 \\ 0.82$	- 1.96	0.28	0	5					Earnest De Vilbiss.
erce	Wharton	102	5	68.5		93	5t	33	23	44	3.46	*******	2.50	0	4	14	6	11		R. B. Pointer.
inview	Hale	3,370	15	58.8	- 1.9	94	3†	25	23 23	50	2.47	+ 0.87	0.98	3.5	4	21	6	4	S.	J. F. Sander.
rt Arthur	Jefferson Calhoun	20	10	75 9	+ 3.5		94	40	22	40	7.75	- 3.45	5. 25 0. 59	0	3	ii	13	7	n.	Griffing Bros. Co. J. H. Bickford.
st City	Garza		10	10.2	+ 0.0	39	21	40		30	0.72	- 0. 10	0.40	1.0	3	24	3	4	sw.	W. L. Dodd.
tnamymondville	Callahan	1,591									0.89		0.48	0	3 4 6	20	3 4 8	7	S.	Rev. Joseph Reisdorff.
ymondville	Cameron Nueces	57	2								2.39		1.03	0	.0	14	8	9	se.	C. H. Pease. Lindsay Waters.
eardoverside	Walker	169	7								4.42		2.78	0	5	17	0	14	n.	Lindsay Waters, Mrs. C. W. Higdon, H. D. Pearce.
bert Lee	Coke	1,850	12																	H. D. Pearce.
eklandekport **ssville	Tyler	136 12	10	71 9	1 0	95		47	22	18	2.10 0.70	- 2.77	0.90	0	3	11 24	6	14	n. se.	Edward Jones. Mrs. G. B. Grewe.
ssville	Atascosa	558	4	71.5	- 1.8	97	7 3	36	22	36	1.13	- 2.11	0.53	0	4	10	16	5	se.	W. F. M. Ross.
nge	Karnes	308	16								1.48	- 1.12	1.48	0	1					Reiffert & Frobese.
oinal	Uvalde	964	7	70.8	•••••	96	3†	37	23	35	5.97 1.62	******	3.50 0.70	0	5	12 18	6	13 12	se. s.	Jas. Johnston. L. M. Crockett.
ado Angelo	Bell Tom Green	1,847		65.8	+ 0.1	95	2	30	21†	41	1.06	- 0.86	0.80	0	5 3 3 5	20	7	4	n.	Sam Crowther.
Antonio	Bexar	701	20 26	70.4	$+0.1 \\ +1.2$	95 95 97	3 4 4	40	22	33	3.57	- 0.86 + 2.08	2.47	0	5	13	9 5	9	n.	U. S. Weather Bureau. F. A. Wilson.
Augustine	San Augustine	360	2 2	67.6		97	4	- 34	23	40	2. 20 0. 68	******	0.95	0	8	16	4	10 24	se.	J. B. McAllen
Juanito	Hidalgo	588	18	68. 2	0.0	99	21	37	24	35	3.41	+ 0.42	0. 81	0	7	13	0	18	n.	Miss L. C. Ford.
Saba	San Saba	1,712	10		+ 2.0	96	3+	31	22	40	2.48	- 0.12	0.73	0	7	21	7	3	n.	
ita Gertrudes	Nueces	201	11								2.86		1.41			17	3	ii	n,	J. B. Wright, jr. O. H. Albert. S. C. Lee.
mour	Austin Baylor	1,320	5	65. 2		98	1+	27	30	48	0.28		0.28	0	1	23 19	0	8		S. C. Lee.
yder nerville	Scurry			62.6		97	1† 3 4 3 1†	27 38 30 32	22 23 22 22†	43	0. 37		0.27	0	3	19	5	7 7	3.	J. Allen Weaver. W. A. Dolan.
nerville	Burleson	251 2,300	2	71.5 62.0		97 96	4	38	23	40 45	2.62 1.03		1.26 0.49	0.8	5 7	19 18 21 18	5.	5	9. n,	J. D. Reagan.
ar mford	Jones	2,000		62.4		90	1†	32	221	36	0.25		0.25	0	1	21	7	3		T. A. Williams.
well herland Springs **	Chambers										5.43		1. 65 1. 38	0 0 0	5	18	0	13 14	n. n.	Arthur Bailey. W. A. Clark.
herland Springs **	Wilson Williamson	583	10	70.8 67.6	- 0.7	99 95	3	38	23	38	3.05 1.77	- 0.79	0.63	0	9	19	3	9	n.	U. S. Weather Bureau.
ylor nple	Bell	630	21	66.3	- 0.8	95	4	35 38 37	23 22 22	33 29	4.32	-0.79 + 1.98	2.97	0	9 7	16	5	10		W. Goodrich Jones.
eodore	Winkler		1								0.00		0.00	0	0 2					W. H. Gibbs. J. K. Ball.
urberden	Erath		5		••••••						0.74	*******	0.57	0					******	Wm. Kuykendall.
oli	Refugio		1								2.41		1.11	0	4	9	22	0		W. H. Gisler.
alde	Uvalde	937	3	74.81		98	1†	37 28	23 22	401	4.86		2.75	0	4	4	22	5	96. De	F. M. Getzendaner. Valentine Development
lentine	Jeff Davis	4, 421 289	5 11	63. 2	•••••	93	4	28	22	45	0.00 2.94	+ 0.07	0.00	0	0	26 16	0	1 15	ne. ne.	T. M. Williams.
lley Junction	Robertson Victoria	187	12	72.6	+ 0.1	95	2†	40	23	37	1.36	- 2.30	0.72	0	3 5	16	4	11	n.	C. C. Zîrjacks. E. H. Hall.
100	McLennan	424	22 14	67.3	- 0.3	96	1†	38	22	37	4.49	+ 1.93	3.00	0	8	13	0	18	S.	E. H. Hall. C. D. Longserre.
axahachie	Ellis	556	14	66.9	-0.3 + 0.7 + 0.1	95 96 99 95 95	2† 1† 4† 3	40 38 30 35 32	23 22 22† 22 22 22 22	51	0.76	+ 0.07 - 2.30 + 1.93 - 1.93 - 1.76	0.34	0	4	18 17	1 5	12	n. s.	Miss J. Stickfort.
eatherford	ParkerWharton	864 105	22	70.2	+ 0.1	95	6	32	22	33 45 36	5.30	- 1.76	3.50	0	8 3 5	19	0 3	12	n.	Mrs. F. M. Hughs.
lls Point	Van Zandt	524	6	68.4		98	6	36	00	20	5.08		2.00	0		21	1 2	7	n.	W. W. Gibbard.

^{*,} b, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
**Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 8, Texas and Rio Grande Valley.

Stations.	Watershed.														1	ay (of mo	nth.														
Stations.	wateraneu.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31.
Colorado.																																
anea	Rio Grande.																															
imbres	do		.30		3.08	1.26	. 49															.03	T.			T.			1.08			0000
ermit	do	- 60			.74 T	2.06	****	****							****		****					.09					. 15 T.		.06	T		
Veta Pass	do				.59	1.42								****						. 29	. 67	. 15		****			1.	.71				T.
anassaatoroguache	do	. 15			1.28	. 15															T.							.70	T.			
atoro	do	. 61	. 02		.05	3. 25	10	****		****				****	****					T	.09	.04					. 05					
guache	do	.02		****	.40	1.50	.07	****		****				****	****	****	****		****	1.	.05			****	****		T.	. 76	.01	****	.39	****
agon Wheel Gap .	do	. 17	T.		.71	1.94															T.						. 25					
Experiment Sta-						-																										
New Mexico.																				7												
ricultural College amogordo (near).	do				. 21	75								1						200							T.	. 10 T.	.10			.02
amogordoamos Ranch	do				. 24	. 60																							.02	.39		
amos Ranch	do	T.			1.10	3.48																				*	.80		. 33	. 10		
ouquerque	do				1.75	.09																					.08		. 95	. 08		
chor Mine	do	****	****		.08	1.07	1.04	****			****		****	****	****	****				.30	.40	****				****	.02	. 40	. 23	.30	****	
tesia	Pecos																											. 60	. 20	. 12		
pen Grove Ranch	Rio Grande.				1.73	1.48															.04						.19			. 02		
ieman's Ranch	do	. 80	.11	.02	. 05	. 23		****			****		****	****		****	****		****	****	****	.07	****			****		. 52 T.	.26 T.	T.		
iewater	do				.31	. 98																					T.		. 60			
1Z	Pecos				. 43																	. 22						.07		. 40		
oitan							****						****									· · · ·			****		.08	.12			.11	
isbad	Rio Grande		****			T.	.17		****			1		****				****		****	****	1.					.09	.06	.30	.07	.08	****
rizozo	do	. 45			. 40	2.30	. 05														T.						. 95					
ona	Pecos				.09	- 79																							. 21	. 54	.17	
ona	Rio Grande				.05	. 20				****	****	****		****				****	****	****	T.	****					.03	. 08	. 55	47	.12	
idiyo						. 91										1				-0.00	****		****	****	****			. 60	.40	.50	.10	****
nonstration arm.	Pecos				1. 22	.10														. 05	. 07							. 21	1.00			
an	do				T.	T.															T.							. 35	T.	.10		
ondido	Rio Grande.		T.		. 15	. 16	20																				. 03		.71	****		
anola	do	. 20			****	2.00	26									****	****			20		****		****		14	17	19	. 38	11	10	
t Stanton	Pecos				1.01	. 33																T.						.12	.03	. 55	. 24	
t Sumner	do													1	1																	
linas Planting .	do	****			50	9 10	T.			****						****					·						. 88	40			. 15	
ration.			1	1	1			1	1			1	1		1	1					1.	. 00			****		. 23	. 42		.03	A	
rieta Ranch vey's Upper	Rio Grande. Pecos	Т.			2.05	2. 10														т.	.31	T					- 11			.10	.07	T
anch.					1						1	1		1													1			1		
	Rio Grande.					·				****												****								****		
ado Reservoir	Pecosdo		****		****	T.	****		****	****							****	****		• • • •		. 40									. 04	****
ez Springs	Rio Grande.	. 25			. 62	3. 20																			****			. 55	. 45	.12		
owles	Pecos	T.	.06				T.															. 06						. 39				
una	Rio Grande. Pecos						****																								****	
ce Valley	Rio Grande.				. 75	. 63																					. 27	. 09	. 22		****	
vegas	Pecos																															
Vegas	do				. 55	. 90															T.	. 10				T.		. 75	.18	. 35		
Lunas (near)	Rio Grande		****		77	1 39		****													. 30				****		40	T.	79	.71	****	
gdalena	do		1		11.05	. 12	1			10020										A 20							. 32	. 10	40	. 05		
calero	do	T.			. 15	.50	T.																					. 18	. 05	.77	. 24	
neral Hill	Pecos Rio Grande.				. 95	. 97															. 25							1.60	. 35			
untainair	do				. 36	. 56																					T.	.49	38	.00	. 06	****
wman	do			ren.	. 25	.06																										
ria	do					.08																							. 22	. 12		
ingegrande					. 67	.01	****		1																****		.01		.05	.30		****
ura	do				.03	. 20																						.10	. 01	.49	. 03	
S	Pecos					T.								1								T.					T.	. 30	T.	23	. 22	
otura	Rio Grande. Pecos		****		. 25	1.05										1	1				.04						. 62	10	0.3	14	. 12	
citas (near)	Rio Grande.				. 57	2.06				****	****						1				. 15			****			.37	.50	. 15	. 14		****
inview	Pecos				T.																. 40						*	. 89		. 65		
d River Canyon.	Rio Grande.				. 04	1.00	1.00													T.	. 20	. 10						.30	.80			
Grande Dam	do				T.	64														****			****				T.	T.	T.			
Grande Indus	do				. 42	1.73																						.50	1.01	. 20		
rial School.			1			1	1		1						1																	
sedale	Pecos					1.00																***					100	.10	. 42	.10		
Marcial	Rio Grande.				.10	77	****	****				****		****		****		****	****		. 33						.17					
Rafael	do				. 60	. 98			1	1	1																T.	T.	.34	. 16		
ta Fe	do	. 03			. 52	1.51	T.														.01						.30	. 16	.41	. 19		
ta Fe Canyon	Pecos				1.20	1.30								inne							T.						.57 T.	. 20	.50	T.		
orro	Rio Grande.	****		10	1.24	.12			1			1		****													.45	. 10	29	. 20		
th Fork	do					1.70															. 22	. 26					*	.40	.60	.10	.20	
nley	do																															
auss	Pecos	. 08	T.		. 33						****										70						·		m			
10116	Rio Grande		1	1																							33	. 23	37	. 50		
os Canyon	do	. 10			. 27	1.38	. 20	. 02							1		1				T.		****				.40	. 02	. 18	. 52	. 15	
os Canvon	do	. 15	. 01		1.21	. 49														. 03	11	-					- 11	. 07	. 15	. 46	. 23	
-1-4-	110				. 15	. 12																					. 07	T.	. 55			
oloteee Rivers	do																														.07	

TABLE 2.—Daily precipitation for October, 1911. District No. 8—Continued.

Stations.	Watershed.				-			, ,							1)ay	of mo	ontn.										-					- 3
-		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
New Mexico-Con.										1																							-
	Rio Grande.																																. 4.
	do	. 22			. 49	1.20			••••								****				. 04	.04					****	. 23	. 62	. 25	.02	****	. 3.
aughn	Pecos				. 20																. 09	.18					T.	. 27		.10			. 0.
irsvlvia	Rio Grande. Pecos	10			1.80	2 24	.01														.12					.01	. 29	.16					3.
Texas.	1 6005	. 10			.01	2. 47					****	••••	****	****		****	****	****				. 00	****			.01	.00		-	-		****	-
bilene	Brazos						. 46	.27					. 39									.23						T.		. 02			1.
bany	Coast					. 65			30	10					75						.23 T.	T								T.	T.	99	2 1.
ice	Pecos							.70	. 20	.10	.00				. 10																		. 0.
vin	Pecos Coast						****					. 46	T.	T.			1.20														. 93		. 2
nahuac	Trinity	••••					T.										. 10		****			. 22								.08			. 0
permont	Brazos			1	10000				. 40																					.21	.36	.02	2 3
istin	Colorado	••••						2, 10	T.				1. 33	. 4/			.10					.10									T.	. 0.4	. 2
irstow	Pecos						. 15					3000	100																		· · · ·		. 0
ay City	Colorado Neches				****				77		16	. 40	1.85	. 25	13		.57	67			Т.	T.	. 23	****				****			I.	.81	1 5
eeville	Coast	. 08				J			. 18	. 17	T.		T.	. 05				. 08					T.									.06	
	Colorado							10		12				1.08			. 26											. 23		. 02	****	. 43	3 2
erne	San Antonio						T.	.01	.12		T.	T.	.78	. 01		. 02			T			. 68								T.	. 35		. 1
	Brazos						07						.52		. 05			. 92				.32	. 20							iii		1.75	0 4
adv	Colorado																															****	
azoria	Brazos						. 05					. 02	. 32	1. 28			1.12			T.		T.						****			.40	.01	1 3
razos	do	. 15								T.			T.	.85	T.		. 45	.06			T.	. 20	. 42								.07		9 2
enham	Trinity	. 10																				T.		****						T.			. 0
righton	Coast Rio Grande.	T							T.						. 30							. 24					****			.02	.08		. 0
ownwood	Colorado						. 15	T.	T. T.				T.				T.					. 23										. 15	5 0
meron	Brazos							T.		T.		07	1.20	. 45			. 40					30					****			T.	.09		. 3
	Brazos							1.			.00		1.20									. 41					T.	. 48					. (
fton	Colorado							.17	T.				1.17 T.				1.11					.52								.07			. 2
lemanllege Station	Brazos							. 03	1.	****		T.		.53			.16			T.		. 28	. 01							.06			2 3
lorado	Colorado													. 22			.53					.30					****	.10			49		
lumbialumbus	Brazos Colorado	T							.80	T.	****		00		.32				****	****	****	. 00	. 28								T.	1.46	
rous Christi	Coast	01		. 01	T.			03	01	02	T.		. 03	. 01	.11		.52					. 04								T.	.02 T.	. 05	
rsicana	Trinity							. 05	. 13	T.			. 05	. 07	T.		. 25			****	****	****	. 37	****			****	****			1.	.80	0 1
ockett	Trinity		1					. 36				. 05		1.11			. 60					. 30								. 02			. 2
iero	Guadalupe	. 06												1, 68			.08	. 02			.01	79				1					.02		7 3
	Trinity								. 20								. 04					.50									1.45		. 2
	Trinity							70				· · · ·	7						T.			.02						02			36		i
	Rio Grande. Nueces							.70 T.	T.			T.	T. T.		T.	T.	T.		A.			. 37						. 02			1.10		. 1
alville	Neches								T.	T.	T.	T.	T.	1.10			. 63					. 40								T.	T.		. 2
	Nueces Brazos							. 25 T.				****				. 50	.12					. 49									. 42		. 1
ıval	Colorado							.12	T.			T.	1. 49	. 18			.82			T.									T.	.06	. 62		. 37
	Rio Grande. Brazos							. 65 1. 15		T			T.	6. 75 T.			T.			. 18								T.	1.		T.	T.	1
lna	Lavaca				. 10								. 31			. 58						.10					. 10						. 1
Paso	Rio Grande.		. 02		. 32	.00																					. 01	T.	T.	. 02		****	. 0
	Nueces Colorado												T.																		***	T.	1
irland	do									.01			. 23	1	70		. 20					. 38		****				****			.72	1.89	0 3
	Guadalupe	.17						.70		.14		T.	2. 15	.30	T.		.41			T.		. 15		****	0000						1.25	. 05	5 4
int	Neches									.12			T.	2. 35			1.19														.01		. 3
	Brazos Rio Grande.							T	T	. 22									.24		. 25									.80			1
rt McIntosh	do							. 58	.52	. 22				. 75															m.			1.00	0 3
rt Stockton	Pecos						T.	T.	T.				.37			. 20						.24		• • • •				T.	T.	1.13	T.		
edericksburg	Trinity Colorado			1::::				T.				. 04		. 40			.47					. 15									. 27		. 1
inesville	Trinity		T.					. 32				70	.39	. 07			1.75			T.	T.	. 33		****				****	****		1.62	.04	4 5
lveston	Brazos	T.	T.					. 25	T.		. 65	. 80	.39	. 25		. 20	1.87			1.	1.	. 30									. 35		. 2
orgetown	do	. 07						. 80	. 02	.17	. 03			. 28									.17									2.30	1 3
	Guadalupe Brazos							T	T.	T.			*	3.00			. 18			****	****	.30	. 41		****			****				2.00	. 3
aham	do						. 13															. 27								. 13			. (
ahamand Falls	Pecos						T.	91	T	T.				1.75								. 44		****				****	****		T.	****	3
	Sabine		**,**				1.	. 04		. 03						.52						. 23					10000			. 15			. (
eenville	Sabine	. 30						7	773		T.		T.	T.			. 63			T.	****	. 20									i. i2	.15	5 3
	Lavaca Brazos		••••	T.	T.		****		Т.		****		1.70				.10		****	1.	T.	.01											. '
rlingen	Coast																							****				1 10				****	- 1
rper	Colorado							.19											****	****		.31		****				1.17	.02			****	. (
bbronville	Brazos					1		. 25	. 58	.07				1															****		.90		. 1
mpstead	Brazos	T.										T.		.72	T.		- 55	. 20	T.	T.		.32	. 20		0.00				****		.15		
	Neches Brazos							.16	T.	.15			1.61	2.45			. 42			T.		. 36									.11		. 8
	do						1	. 13		1			. 11	T.		. 30						, 20								. 03	.12		
ico				2000	1																												
00	do Nueces Coast Trinity								. 19	.04		T	T.	2.55		****	T.			.10		T.	. 35								1.35	1.90	U 0

TABLE 2.—Daily precipitation for October, 1911. District No. 8—Continued.

															I	ay (of mo	onth.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ezas-Continued.																																
wett []	Trinity								T.	T.		T.	1.04	.78		.75						. 40								T.	T.	
nction	Colorado							. 42	. 08													. 40									1.15	
ufman	Trinity											T.	.75	.14			1.05					. 45								T.		
errville	Guadalupe													. 42	. 20								. 18									. 15
nickerbocker	Colorado						T.	1.37	T.	. 05			. 30	T.			T					. 20						T.			. 22	
pperl	Brazos Colorado	****						T.	T.			****	T.	T.			T.			T.	T.	. 56										. 10
grange	Colorado	****	T.	T.				T.					1.60				. 26			T.		. 56								. 07	. 93	
mesa	Brazos														.06							. 28						. 10				
mpasas	Brazos	.11	****			****		. 26						. 15	.06		. 06						. 28									. 60
Parra	Coastdo Trinity	****					6.70					****			****			****														
ureles Ranch	do	****							****		****		::	****	****								****									
perty	Trinity	****	****		****		T.	T.	. 25	T.	. 24	.10	. 55	. 10	. 40		T.	. 65		****	T.		. 20			****						. 52
no	Colorado	****			****	****	****	T.	. 25	T.		T.	. 10	. 28	. 10					****	****	. 26	.17								T.	1.22
ano Grande	Rio Grande.													. 24	****	****	1.09	10			****	****	1.					****			***	
ng Lake	Trinity										. 09	****	. 03	. 24							****		. 37			****		****			. 12	
ngview bbock	Sabine Brazos		****		Tr.					.04				****		****	1.04				****	43	. 00			****		00	10	17		10
fkin	Neches	****	****		A.	****					T.	****	'm	2.63	****	****	. 22					. 41										. 18
ling []	Guadalupe												03	46	. 05						****		25	****				****		****	.10	
Gregor	Brazos													1. 10		****	.16	.02			****	55	. 20	****				****			.12	
rathon	Rio Grande.													****		****		****			****	T.		****	****	****		****	****	****	T.	
rble Falls	Colorado									. 12	T.	T.	.31	. 38			. 22						1.20		****	****			****	****	1	1.07
rfa	Rio Grande.																															2.0.
rshall	Sabine									T.	T.	T.		T.			. 81			Dono		43							-	T.	T.	
tagorda	Coast											. 50	3,00	. 55				1.10											1000		1	
xia	Brazos									. 05				. 35	. 03		. 65	. 10					. 32								T.	
dland	Colorado																				. 05							. 05		T.	T.	1
sion II	Rio Grande.																						T.						.11			
nt Belvieu	Coast										T.	1.63	. 20	T.								. 25								J	.70	. 13
untain View	Pecos	. 02													. 04												T.	T.	T.	T.	T.	.01
unt Blanco	Brazos			. 18																		. 29						25	. 40	T.		
eogdoches	Neches									T.	T.	****			.77		.70						. 37								T.	
w Braunfels	Guadalupe								.11				1.15	. 87			. 35					. 45							. 02		. 22	
estine	Trinity							T.	T.	.01							. 89					. 30										
iter	Brazos		****					****								. 28	. 23													.15		
rsall	Nueces									****		****	.14				. 09															
rce	Colorado	****										, 12		. 65			.19															
inview	Brazos Coast			****			****		****		***		****			****	0.00			****	****									. 86	T.	.15
rt Arthur	Coastdo		****	70					70	****	. 50	0. 25			****		2.00							****								
t City	Brazos			1.				****	1.	****	****					****		****	****	I.	****	T.		40				01		T.	. 59	
tnam	do					****	48					****		02	****							17	****	. 40		****		. 41	****	99		
ymondville []	Coast						. 40		97	. 01	T			. 02	****			15	****	****	****	20	03	****			****	****	****			1.03
ardo	do									. 01					****			. 10	****	****	****	. 20	.00	****		****						1.00
erside	Trinity						1	T.		****		T		2.78	50		. 34	****					50									30
bert Lee	Colorado																.01	****	****													. 00
ekland []	Colorado Neches					.30						. 10		. 60			.90	0.10	. 20													
ekport	Coast																. 33					. 25										
sville	Nueces							. 05						21								24										
nge	San Antonio Nueces																													1000	1.48	
inal	Nueces								. 04					3.50						. 28		. 20									1.95	
ado	Brazos								T.				.70				. 31														. 61	
Angelo	Colorado						. 24	.80	T.						1							0.0						T.		T.	T.	T.
Antonio	San Antonio.								T.	T.			.16	. 69			T.			. 01		. 24								T.	2.47	
Augustine	Neches								T.	. 03	. 04	. 33	. 12	. 95			. 50					. 20									. 03	
Juanito	Coast								. 13	. 18							T. .50			T.		T.									.06	
Marcos	Guadalupe		. 25					****						.75			. 81	. 05					. 65								. 10	.80
Saba	Colorado							. 64	. 04				. 58																		.73	
ta Gertrudes	Coast		****	m.													.26															
ly	Brazos		****	T.	T.	****			. 02	T.		. 08	. 36	. 32			. 26			T.		. 27								T.	1.41	.14
mour			****				T.					****										. 28		***				T.		T.		
der	Colorado Brazos						****	m			****		07	01	****	****						. 27		***		****	***		. 05			
	do	.09						T.			****	****	. 67	. 01		****	. 35					. 33	T.			****						
mford					****	****						****			.00	****						. 49	T.					T.	. 17	. 05	.02	. 15
well	Coact	****				****			****	****		1 00	1 00			1 10			****	****	****	. 25				***	****	****		****	1 01	
herland Springs.	Coast San Antonio. Brazos		****				****	T	T			1.00	1.03	79		1. 10		****	****	m			****			****				17	1.01	
olor	Brazos	T	04			****	****	10	T	Tr.		01	69	01	m	. 10	49		****	T.	****	. 02			****			·		. 17	1. 38	
ple	San Antonio. Brazosdo Pecos	1.	. 0%					07	1.	00	****	.01	. 02	2 07	02	****	43	****		1.	****	.10	90	****	****	****	****	I.	****	.07	. 31	10
eodore	Pecos							.01		.00				2.00	.00	****	.00				****	****	. 00		****				****			. 10
	Brazos							57											****	****		****	17	****	****			****				
len	Brazos Nueces. Guadalupe Nueces. Rio Grande Brazos Guadalupe Brazos Trinitydo Colorado Sabine Colorado			****	****		****	. 04		****			****		****	****	****		****		****	****	. 16			****			****	****		****
oli	Guadalure					. 10		1.11				****	40	****						****	****		****								90	
alde	Nueces							T.	T.	T.		T.	T.	2, 75	T		T			.35		. 52	****		****	****		T		T	1.24	****
entine	Rio Grande																4.			.00		. 02			****	****		1.	****	4.	1.29	
entineley Junction []	Brazos												****	1, 30	****		1.00		****			****	40	T	****	****			****	****		15
toria	Guadalupe								. 27				****	4. 00	****	****	. 37		****			.79	. 10		****	****				****		. 10
00 11	Brazos								. 25				2, 10	.90			.82						.49		****	****	****	****				
xahachie II	Trinity							T.	. =0				T	. 00	.00		. 28		****			T	34		****	****		****		****	0.5	
co xahachie atherford	do	. 09						. 33			. 05		T	.02	.00		T					.15	.04								00	.02
arton []	Colorado												3.50	.80									.01			****						1.00
lle Point	Sabine												. 30	2,00			1.18					1.50	****			****				10		1.00
iters																																

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for October, 1911. District No. 8, Texas and Rio Grande Valley.

		Colo	rado.								N	ew Me	xico.											Te	xas.			
Date.	Gar	nett.	San	Luis.	Agrica	ıltura! ege.	Carl	sbad.		ort nton.		tain-	Rose	dale.	Ross	well.	Santa	a Fe.	Sar	nta sa.	Abil	lene.	Spri	ig ings.	Brovil			pus isti.
	Max.	Min.																										
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6 7 8 9	65 64 65 66 71	28 29 26 25 27	61 67 65 69 64	34 30 28 28 28 31	74 74 71 73 79	45 44 43 38 48	86 79 76 74 86	62 54 44 41 45	69 62 61 69 74	49 44 31 27 31	73 64 65 64 59	41 40 32 42 43	61 60 58 60 65	38 41 35 34 38	81 72 72 72 72 81	57 45 38 36 39	59 60 59 60 67	40 38 34 35 38	70 69 70 74 80	51 40 37 37 40	92 69 62 70 81	65 57 52 49 53	90 72 68 76 86	69 60 54 41 54	91 91 82 74 86	77 72 67 63 64	88 89 74 71 78	80 74 65 64 65
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6 7 8 9	62 68 67 66 68	21 21 22 21 21 22	61 67 54 55 50	23 23 23 24 23	71 76 79 69 76	40 35 37 40 41	94 83 88 78 79	48 36 35 44 38	64 75 74 53 64	28 29 32 35 23	68 70 72 59 58	29 31 33 29 20	64 68 68 59 63	35 36 38 35 31	69 81 85 59 63	40 31 34 36 29	56 63 65 46 38	30 30 31 34 25	70 80 82 70 53	33 31 48 36 33	73 79 84 68 63	54 46 51 47 44	79 83 85 72 68	48 40 53 44 40	92 83 86 87 84	71 60 51 60 66	83 82 80 80 80	65 65 66 66
11 12 13 14 15	58 53 58 60 66	19 13 14 15 21	43 60 61 68 62	3 13 19 23 30	59 64 72 78 81	38 30 31 38 43	68 70 72 83 81	34 26 30 32 40	64 63 67 71 72	28 22 18 24 29	48 73 71 68 73	24 30 33 35 28	52 55 60 65 66	21 25 28 36 39	47 63 69 78 73	32 26 29 29 29 37	39 55 58 60 61	21 24 28 30 37	48 66 74 74 71	29 23 27 32 32	53 63 74 72 76	35 32 40 44 45	59 68 66 78	35 27 32 43	92 66 74 81 85	60 49 44 50 56	74. 65 68 74 75	53 47 48 52 65
26 27 28 29 30	60 45 47 49 51 50	21 24 23 24 32 20	60 44 42 50 51 53	35 25 30 30 29 23	80 84 82 66 67 70	56 44 42 43 36 36	76 69 45 70 64 71	44 40 38 44 37 36	68 53 52 56 55 62	35 28 27 33 32 25	65 36 42 56 57 56	34 25 25 35 31 23	63 54 38 52 54 54	40 32 32 31 34 30	69 43 43 55 59 65	42 33 33 42 40 32	59 45 42 47 48 49	41 28 27 32 31 30	66 44 47 51 61 64	35 28 28 35 37 32	77 58 50 54 66 68	50 41 39 43 46 44	86 63 49 50 67 74	43 49 47 40 38 42	84 82 82 84 86 76	62 60 60 60 70 67	76 76 74 76 78 77	64 62 59 64 65 62
Mns	62.8	24.8	61.0	27.8	76.9	44.2	81.1	46.3	68.4	33.8	65.5	34.2	62.4	38.1	73.1	41.4	57.7	35.8	70.8	39.3	75.7	53.7	79. 4	52. 3a	86.0	64.6	80.0	67.

														Text	AS.													
Date.	Del	Rio.	Ell	Paso.		ort itosh.	Stock	ort kton.	Fort V	Worth.	Galv	eston.	Hall vil		Hous	ston.	Luf	kin.	Pales	tine.	Plain	view.	Anto		Seyn	nour.	Tay	or.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
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16 17 18 19 20	80 86 64 77 78	57 48 50 58 - 54	71 75 80 67 77	51 43 42 44 45	92 87 89 84 86	61 56 51 50 58	80 83 88 75 76	47 45 47 45 39	72 77 82 71 66	57 52 54 56 52	81 75 76 77 79	65 66 67 72 71	72 78 80 75 76	61 54 50 61 58	76 78 82 78 81	61 57 58 62 64	80 72 72 79 78	60 48 44 52 58	74 74 78 74 70	56 55 50 58 55	69 79 90 80 59	44 35 40 35 29	76 82 84 79 76	61 55 52 61 56	78 83 90 80	40 35 40 41	75 79 82 74 70	58 52 49 58 53
21 22 23 24 25	65 66 73 74 78	44 34 34 43 49	56 62 70 79 81	41 35 35 44 51	82 72 78 82 86	56 45 40 42 52	65 68 76 87 85	39 24 32 43 43	53 66 78 73 77	42 36 43 49 47	76 62 66 70 72	50 49 54 60 59	59 62 69 73 76	49 43 40 43 49	68 63 72 75 76	50 43 47 51 51	74 62 75 76 76	49 37 35 40 40	55 60 73 72 74	44 38 45 46 46	52 67 70 75 77	30 26 25 33 36	62 67 74 74 79	46 40 41 45 51	65 68 80 77 79	32 54 32 36 40	57 63 74 73 75	44 38 41 44 48
26 27 28 29 30	79 75 66 74 68 74	58 60 48 59 61 57	80 61 62 63 65 68	59 43 43 43 43 42 37	88 85 83 84 90 78	56 60 54 61 70 67	84 72 62 71 67 74	43 45 37 38 44 38	76 62 56 57 58 64	48 47 45 44 49 43	74 75 72 71 71 71 78	60 62 58 60 63 63	77 78 77 64 70 72	48 50 52 54 60 58	78 78 75 74 68 75	52 55 56 54 63 60	79 77 70 72 69 74	43 45 46 46 56 54	75 72 66 67 68 67	48 49 47 46 55 52	76 56 38 45 66 65	40 30 28 35 33 34	80 77 74 73 64 74	52 54 51 55 59 55	80 74 48 49 64 68	42 36 37 46 27 33	77 72 68 64 61 68	46 51 47 46 55 51
Mns	81.5	60.0	75.8	50.8	88.5	61.8	82.3	50.8	75.8	56. 5	77.7	67.7	79.5	61. 1	80.0	62.4	79.8	56.3	76.1	57.7	75.1	42.5	80. 5	60. 4	81.5	49.0	77.6	57.7

*, b, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG. District Editor.

GENERAL SUMMARY.

October was colder and much wetter than the average throughout the Colorado Basin. Departures from normal weather conditions are usually not a serious matter in this district, but during October, 1911, all records for destruction of property in the district due to such causes were broken. Had the precipitation in the San Juan Basin come in the way common to October-that is, in the form of snow, instead of rain, in the high mountain regions—several lives would not have been lost, and property estimated at \$1,000,000 would not have been destroyed. Downpours of rain during the warmer months of the year from local thunderstorms are expected occasionally in the mountains, but the areas affected are usually small. With the coming of autumn, thunder-storms give way to general storms that spread their influence over a wide scope of country, causing sharp falls in temperature and occasional heavy snowfalls. On October 4 and 5, instead of these last-named conditions, mild temperatures prevailed as high as or higher than timber line, permitting precipitation in the form of rain rather than snow, the usual accompaniment of storms of this character at high levels. Heavy snowfalls may cause inconvenience and interrupt traffic for a short time, but there is no instance where 2 days of snowfall has blocked railroads for 6 weeks, as has been caused by rain in this case on one line into Durango, Colo. Details of the damage caused by this remarkable storm on the San Juan watershed will be found in another column. On the adjacent drainage areas in the district heavy rains also occurred, and there was some loss of bridges and damage to trails and roads. From the 26th to the 29th stormy weather was again general, with heavy rainfall in localities in Arizona and western New Mexico. In these localities, however, the fall was quite beneficial in reviving the grass on the ranges and replenishing the water holes. Apart from the few stormy days, weather conditions during October were favorable.

TEMPERATURE.

The mean of the 150 stations reporting was 52.7°, or 1.5° below the normal. By subdivisions the means and departures were: Western Wyoming, 37.5°, -2.2°; western Colorado, 42.1°, -2.1°; eastern Utah, 47°, -1.2°; western New Mexico, 53°, -1.2°; Arizona, 61.9°, -1.3°; and southeastern Nevada, 56.6°. The highest monthly mean was 74° at Mohawk Summit, Ariz., and the lowest, 25.2°, at Corona, Colo. Over the greater part of the area not in the mountains the first 6 days were cooler than the normal; then followed nearly 2 weeks with temperatures above the normal in Arizona, while weather somewhat cooler than the normal prevailed in the remainder of the district. A cold snap was general from the 20th to 23d, inclusive. During this period the lowest temperatures

of the month were generally noted. The succeeding days, which were slightly warmer than the normal, were followed by cool weather. The highest temperature, 105° , was noted at Casa Grande, Ariz., and readings of 100° or higher were noted at 5 other stations in Arizona. The lowest temperature, -17° , was noted at Dillon, Colo., on the 21st; 5 other stations, all in Colorado, reported readings below zero on the same date.

PRECIPITATION.

The average for the 196 stations reporting was 2.59 inches, or 1.30 inches above the normal. The average for October, 1910, was 1.00 inch. By watersheds the averages and departures were: Green, 1.42, +1.06; Grand, 2.36, +1.19; San Juan, 4.04, +1.77; Little Colorado, 2.12, +1.24; Gila, 2.16, +1.41; Mimbres, 2.18, +0.74; and Colorado proper, 0.80, +0.27 inch. The greatest monthly amount was 10.65 inches at Gladstone, Colo., elevation 10,400 feet. Of this amount 8.05 inches fell on the 5th. A large number of stations reported excessive precipitation.

The snowfall occurred toward the close of the month and was confined to high-level stations in Colorado and 1 station in Utah. Monthly amounts of 10 inches or more were noted at 6 stations in Colorado.

The average number of days with 0.01 inch or more of precipitation was 4 in western Wyoming; 6 in western Colorado; 4 in eastern Utah; 5 in western New Mexico; 4 in Arizona; and 1 in southeastern Nevada; and for the district as a whole 5 days.

MISCELLANEOUS.

The amount of sunshine reported was as follows: Grand Junction 76 per cent of the possible; Durango 78; Flagstaff 81; Phoenix 80; and Yuma 93.

The relative humidity was above the average, except in the southwestern part of Arizona. The following values were reported: Grand Junction 60, Durango 63, Flagstaff 59, Phoenix 50, and Yuma 42 per cent.

FLOODS IN SOUTHWESTERN COLORADO AND NORTH-WESTERN NEW MEXICO.

FREDERICK H. BRANDENBURG, District Forecaster.

The worst flood since the settlement of the country occurred in the Dolores and San Miguel Rivers in western Colorado, the San Juan River and its tributaries, the upper Rio Grande in Colorado, and the tributaries of the Rio Grande in northwestern New Mexico on October 5 and 6, 1911. Heavy local downpours have occasionally occurred in the mountains during the latter part of summer, causing severe floods of short duration over limited areas, but there is no previous record, or even tradition, among the Indians of such severe floods occur-

ring simultaneously in all the streams of southwestern

Colorado and northwestern New Mexico.

The floods were caused by torrential rains throughout the district, more particularly in the high mountain areas, where, under normal temperature conditions, precipitation after the middle of September is in the form of snow, which remains till spring. The San Juan Mountains, which are a part of the Continental Divide, form the watershed between the upper Rio Grande on the east, the San Juan on the south, and the Gunnison on the north. It was in this region that the storm was most severe. In general, the rains began during the forenoon of the 4th, becoming heavy during the night, and continuing heavy until late in the afternoon of the 5th. There is evidence that the rainfall increased with altitude. The effect of rainfalls of 2½ inches to more than 8 inches on the steep slopes of the San Juan Mountains was to cause quickly forming floods that swept everything in their path. Five lives were lost; miles of railroad tracks were destroyed; scores of bridges were carried away; and there was a general destruction of crops, of farm lands by immense deposits of silt or by erosion, wagon roads, trails to the mines, irrigating ditches, flumes, and other mining equipment. The Denver & Rio Grande Railroad Co., which includes the Rio Grande Southern, estimates that from \$400,000 to \$500,000 will be required to restore its bridges and roadbed. The damage to other interests is variously estimated, and will probably reach \$500,000, and it will be months before normal conditions of travel will be restored.

FLOOD IN THE SAN JUAN.

The trunk stream rises in the southeastern part of Mineral County, Colo., and flows southwestward through Archuleta County, and thence westerly in San Juan County in northwestern New Mexico. Its tributaries, Piedra, Pine, Animas, with its tributary, the Florida, the La Plata and Mancos are similar as regards length, and the character of the region drained, namely, a mountainous country ranging in altitude from 14,000 to 6,000 feet, with the gradient southward to the San Juan River. On this drainage area moderate but persistent rains fell for a number of days prior to the coming of the torrential rains. In Archuleta County, on the 4th and 5th, rainfalls of 2.50 to 3.82 inches occurred; in La Plata County, from 3.40 to 3.52 inches; and in San Juan County, from 2.59 to 8.05 inches. On its southern drainage in New Mexico the rainfall on these 2 days was from 2 to 4 inches. In southeastern Utah the rainfall ranged from 1.11 to 5.05 inches, while farther north, where the drainage is into the Grand River, it was from 1.76 to 2.28 inches.

At Arboles, located at the junction of the Piedra and the San Juan, the destruction was almost complete. Every bridge on the Pine, with the exception of the Government bridge at the Indian agency and the railroad bridge at La Boca, were washed away. The 2 bridges left standing had the approaches destroyed. Ignacio and Bayfield were flooded, and much damage was sustained. The steel wagon bridge at Ignacio was carried away, as

were all bridges between Ignacio and Bayfield.

Apart from the Denver & Rio Grande Railroad Co., the worst sufferers by the flood in the Animas Valley were the ranchmen. During the night of the 5th running water covered the valley, and hay, grain, and other crops were carried away, and in the vicinity of Hermosa much land was injured by washing. The San Juan Water & Power Co. suffered a damage of almost \$10,000, the entire trans-

mission line in the Animas Canyon being destroyed. In the upper part of the Animas watershed the Red Mountain-Silverton Railroad was damaged, probably to the extent of \$25,000. The Silverton, Gladstone & Northern also sustained great damage.

Mr. Wayland Bailey, in charge of the local office of the Bureau at Durango, has furnished the following report

of the flood in the vicinity of Durango:

On October 4, 1911, light rain began at 10.47 a. m.; 0.12 of an inch fell up to 6 p. m.; it became heavy after sunset, and 2.08 inches we measured at 6 a. m. on the 5th; it continued with but slight interruptions until 6.48 p. m., 1.22 inches more being recorded; the total was 3.42 inches in 32 hours. The rainfall was probably heavier in the mountains. All streams were out of their banks.

On the 5th the bridge on Main Avenue over Junction Creek was

washed away, and the railroad bridge over the same was torn from its

During the night the Animas River at the Main Avenue bridge rose about 3 feet higher than during the flood of 1909; water to the depth of 5 feet flowed over Main Avenue near Fifteenth Street, washing out the sides of the avenue and destroying the sidewalks. The city footbridge at Fourteenth Street and the footbridge at the smelter were swept away, and the eastern approach to the bridge of the Rio Grande Southern Railroad was washed out, and one span of the bridge of the railroad to Silverton was carried downstream for a short distance, though two heavily laden coal cars were on it.

Near the Main Avenue Bridge one house and two barns were carried

away and other houses were flooded with water and mud. On Mexican Flats the houses were flooded and several small houses went down the stream. The damage is estimated at \$25,000 besides that to railreads.

The pipe line which supplied the city reservoir with water was washed out at the headgate and for some distance below.

In La Plata County nearly all the wagon and railroad bridges were washed out, many of the former and some of the latter being carried away entirely. It is estimated that the damage to the roads and wagon bridges of the county is about \$100,000. There was no loss of life in

In the upper reaches of the trunk stream the crest occurred at 10 a. m. of the 5th, at Pagosa Springs; at Aztec, in San Juan County, some time after midnight, and at Shiprock, at 3 p. m. of the 6th. Mr. E. T. Walker, cooperative observer, has furnished the following account of the flood in the vicinity of Pagosa Springs:

The precipitation beginning at 1 p. m. on the 4th, and ending at 11 a. m. on the 5th, totaling 3.82 inches, resulted in the most disastrous flood known within the memory of the oldest inhabitants—Indian, Mexican, or American. The precipitation of the previous few days, viz, September 29, 0.30, September 30, 0.62, October 1, 0.33 inch, had thoroughly soaked the ground, and much of the water ran off. Owing to the constant changing of the channel of the river at this place it is difficult to gage the rise of the flow with any degree of accuracy, but it is safe to say that twice as much water passed here on accuracy, but it is safe to say that twice as much water passed here on the 5th as has ever flowed in any single 24 hours of the 32 years that I have resided on the banks of the San Juan. The precipitation was

have resided on the banks of the San Juan. The precipitation was general throughout the county and resulted in much damage to ranches, roads, bridges, irrigating ditches, railroads, etc.

Two ranch and stock men, Mr. J. C. Dowell and his son-in-law, Mr. Turner, neighbors of mine, lost their lives in Mill Creek, a small tributary of the San Juan. Twenty or more residences and barns were swept away in the town of Pagosa Springs, and many others were moved from their foundations and wrecked. Only one wagon bridge is left in the county, and many of the irrigation ditches will have to be rebuilt, and not a single headgate is left.

rebuilt, and not a single headgate is left.

Owing to excessive rains during the summer and fall, ranchmen were delayed in haying and harvesting their grain, all of the latter and a great deal of the former being in the shock, and all on low lands, amounting to fully a third of the county's production, was a total loss. I doubt whether the present channel of the San Juan through the county flows in its original channel to the extent of a single mile. The cottonwood groves were swept from bluff to bluff, and trees lie in drifts from 5 to 10 feet high.

News of the flood in the upper parts of the different watersheds was communicated to the downstream points, permitting the taking of steps to minimize as far as possible the damage. Along the San Juan, proper, practically every bridge was washed away, and hundreds of acres of orchards were badly damaged; the Methodist Mission, 3 miles west of Farmington, was destroyed,

and one man, John Pice, was drowned. In the lower reaches, at the Shiprock Indian School, the water was 4 or 5 feet over the grounds, and seven adobe buildings with contents were destroyed. At 2 p. m. the gage height was 22 feet; at 3 p. m. the Government bridge went out. The water then subsided slowly until evening, when it had fallen 2 feet. By Saturday morning it was down to the high-water mark of July 20. The damage at the Indian school, including the bridge, is placed at \$50,000

At the time of the floods in the San Juan, similar conditions obtained in the Dolores and San Miguel Rivers, and in a less degree in the Gunnison and the Grand. The resultant of the combined flows in the Colorado River, probably amounting to 150,000 cubic feet a second, reached Topock, near Needles, on the 11th, when the gage indicated a stage of 17.8 feet. At Yuma the crest, 24.2 feet, was reached on the 14th.

At Rico, on the Dolores, 11 dwellings, 1 livery stable, and the city feed yards were washed away on the 5th, and at 8 p. m. of the same date the river overflowed its banks at Dolores, and following the river bed of years ago, swept in a torrent through the town. The roadbed of the Rio Grande Southern Railroad was washed out, and many wagon and railroad bridges were carried away. Similar damage occurred along the San Miguel.

Similar damage occurred along the San Miguel.

On the Colorado, of which the San Juan is one of its important tributaries, the only damage, in the vicinity of Parker, Ariz., was done to crops, estimated at \$1,000. In the vicinity of Needles the principal damage was the breaking of the Cotton Land Co.'s levee on the Arizona side. The water company spent several hundred dollars in trying to prevent further erosion toward their plant. The river as a whole was on an average 18 inches higher both at Needles, Cal., and on the Arizona side, than during the spring floods.

TABLE 1.—Climatological data for October, 1911. District No. 9, Colorado Valley.

			years.	Tem	perature	, in	degre	es Fab	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.	5.8	direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Меап.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
Wyoming.												15								
Battle Mountain	Jinta	7,300 6,740 6,577	12 2	35. 2 37. 2	- 2.5	64 68	8 9	7 3	19† 28	43 46	1. 68 0. 57	+ 0.99	0.76 0.23	1.0 T.	4 6	15 22	10 7	6 2	nw. w.	U. S. Forest Service. J. M. VanDervort. Eden Valley Land & Irriga-
Green River	remont	6,083 7,167 7,500	6 5 2	41. 9 35. 8d	- 1.8	73 63d	81	8 7d	19† 28	45 394	1. 52 0. 72	+ 0.77	1. 33 0. 48	Т.	3 2d	194	3 78	6 1d	w. nw.	tion Co. Geo. H. Maxom. U. S. Forest Service. Do.
Colorado.	Pitkin	0.400	9	36.2		66			21	40	1.06		0.40	4.0	7					Dan McArthur.
Breckenridge	Summit. Rio Blanea San Juan Delta Archuleta Saguache Mesa	9, 483 9, 536 8, 900 6, 175 7, 500 9, 088 6, 000	22 4 13 5 2 18	32.7 47.4 41.3	- 3.7 - 2.3 - 3.2	73 71	9 3 4 13	- 3 - 11 - 17 - 5	21 21 21 21	47 41 50 40	0.95 2.95 5.04 2.97 4.19 0.82 2.38	- 0.40 + 2.06 + 1.17	0.32 1.55 2.40 1.53 2.00 0.52 0.99	10.5 0 9.5 0 0 2.5	4 5 9 5 6 4 11	10 21 18 17 22 13 21	14 2 5 7 6 10 6	7 8 8 7 3 8 4	sw. sw. sw.	Mrs. J. G. Thompson. Mrs. H. Genier. San Juan W. & P. Co. Harry A. Cobbett. Lawrence Nolan. Miss Bessie McDonough. A. A. Wood.
Columbine Ranch I Corona Corona	Routt Delta Grand Moffat	8,766 6,925 11,660	1 1 4	25. 2	0.2		2		21	35	2.44 4.11 2.95		0.60 2.00 0.95	3.7 0.3 13.5	11 6 10	9 14	14 9	8	sw. 8. w.	Mrs. M. A. Caron. Geo. W. Wade. U. S. Weather Bureau. Joseph F. Haubrich.
Crawford (near) 1 Crested Butte 1 De Beque 1 Delta 1 Dillon 5 Durango 1 Eureka 5 Fraser 6	Montrose. Junnison Mess. Delta Junmit La Plata San Juan Jrand Mess.	6, 534 10, 000 8, 560 4, 510	1 1 21 1 16 4 2 12	43.6 35.2 48.6 34.4 45.9 31.0 47.8		65	14 5	13 4 19 15 - 17 17 - 16 17	21 21 21 21 21 21 21 21 21	35 50 50 57 38 58 45	2.84 2.61 2.25 2.01 0.46 5.07 1.38 1.17 2.14	+ 3.32	1. 25 1. 51 1. 60 1. 25 0. 21 3. 18 0. 47 0. 46 1. 36	0 4.0 0 6.0 0.5 5.0 4.0 T.	7 3 4 5 3 8 7 4 7	20 14 19 21 12 17 15 13 20	7 8 13 8	5 8 5 2 6 6 9 12 2	w. n. nw.	C. W. Roe. Charles L. Ross. O. L. Fairley. E. M. Getts. Harry T. Hamilton. U. S. Weather Bureau. San Juan W. & P. Co. L. D. C. Gaskill. J. B. Willsea.
Gladstone. Glen woodSprings(near) Grand Junction. 1 Grandlake. Grand Valley Gunnison. Hesperus. Horsefty.	San Juan Garfield Mesa Grand Garfield Gunnison La Plata Montrose	4,608 8,153 5,089 7,670 8,113 8,700	13 20 3 19 18			77 75	9	10 23 15 2	21 21	44 36 47 51	10.85 1.28 1.53 0.42 2.78 1.21 4.29 3.91	+ 0.22 + 0.62 + 1.59 + 0.58	8. 05 0. 82 1. 16 0. 22 1. 81 0. 48 2. 30 1. 28	13.6 0 T. 10.0 T. 1.8 3.8 9.0	7 4 6 4 4 7 6	13 17 19 17 17 17 22 20 16	2 7 13 7 7 7 7 9	6h	sw.	San Juan W. & P. Co. E. A. O'Neil. U. S. Weather Bureau. Mrs. Belle Kauffman. David Evans. Clarence Adams. G. F. Snyder. Lawrence J. Finch.
Ladore	Ouray	8, 686 6, 190 6, 960 7, 951 10, 846 6, 182	6 17 12 2 8 19	40. 2	- 2.7 - 1.5	69 71 68 69 75	14 4 19	0 9 14 8	21 20 21 21	43 50	3.63 4.80 0.70	+ 1.90 + 2.58 + 0.79	2.16 0.62 1.13 2.07 1.54 2.22 0.30 1.88	4.0 T. 3.2 T. 0 6.0 12.0 T.	9 4 8 4 6 8 3 2	22 21 23	3 6 2 7 3 3 5	7 11 3 6		P. H. Foley. Mrs. G. C. Bassett. J. F. Maurer. A. G. Wallihan. B. M. Krumpanitzky. F. E. Morse. Wm. L. Williams. T. Baker.
Montrose	Montrose	5, 811 7, 953 6, 500 7, 108 4, 729 5, 694	1 20 4 16 2 2	48.2 37.6 46.7 41.5	0 - 2.4 - 3.6	75 64 78 72	14 2 1 1 13		21 23 21 21	44 42 51 49 32 39	2.91 1.13 3.90 6.06 2.42	+ 2.05	1. 49 0. 68 1. 60 3. 67 1. 82 1. 26	T. 0 3.0 T.	7 3 4 7 7 6	19 17 22 17 23 13	77075	5 7 9 7	sw. sw. sw.	U. S. Recla. Serv. Arthur Hanthorn. Mrs. J. W. Scott. E. T. Walker. G. S. Herbolsheimer. J. M. Underwood. F. A. Field. Mrs. Maggie Cammann.
Pyramid	Rio Blancado Eagle	5, 050 8, 695 8, 824	1	39. 2 45. 7	- 0.6	67 71	14	5 17	21 21	43 43	1.87 3.23	+ 2.27	1.08 1.96	T. 0	4	14 17 18	9 8	5 5	w. w.	E. E. Egry. Mrs. C. P. Hill. Dorothea Greiner. Clinton B. Smith.
Riffe. River Portal. Sapinero (near). Shoshone. Silverton (near). Spruce Lodge. Steamboat Springs.	Garfield	5, 437 6, 570 8, 125 6, 110 9, 400 9, 600 6, 683	5 8 1 4 3 8	38.8 47.6 37.3		65 72 66 73	13 13 8 13	15 15 11 18 9	21 22 21 25	1	3.03		4.05	T. 0 6.8 T. 2.0 6.5 T.	8 9 8 7 8 2	19 16 20 14 19	7 6 6	124 11 6	w.	Herman Eiche. U. S. Recla. Serv. W. F. Irving. Central Colo. Pow. Co. San Juan W. & P. Co. H. J. Wills. M. Elliot Houston.
Terminal Dam	La Plata	7, 300 8, 300 7, 000 8, 400 8, 000	4 1 2	40. 2		79		1		58	3. 38 1. 97 5. 35 0. 99			2.7 10.0 0	9 3 6 2	21 20 13 16	14	3 4 5	sw.	San Juan W. & P. Co. Wm. T. March. San Juan W. & P. Co. A. F. Terrill. Martin Esser. Percy A. Hughes.
Utah.	Tan Trans	4,800	8	52,8		-	1.	20	99	41	2,48		0,84	0	4	23	6	2		W R Antes
Bluff Castle Dale	San Juando EmeryGrand	5,500 4,447	12	53,8	- 2,3	77 78 70 78	114		28	40 38 42	1.86	+ 0.32	0.52	0 0	6 3	17 24 23	4 7 4	10 0 4		H. R. Antes. R. N. Gerry. James Jeffs. J. J. Anderson. H. G. Mills.
Dragon Duchesne Elkhorn Emery Escalante Fisher Valley Fort Duchesne Fruitland Green River	Uinta Wasatch Uinta Emery Garfield Grand Uinta Wasatch Emery	6,657 6,200 5,700 5,000 7,625 4,080	5 1 10 10 21 1 10	42.0 50.7	- 6.6 - 3.5 + 1.9	78 78 78 75	15 3 14 14 15 17 8	17 19 20 14	20 20 21 20 23 21	46 37 57 52	0.76	- 0.65 - 0.45 + 0.20 + 0.97	1.00 0.40 0.31 0.87	T. 0	4 4 4 3	23 20 15 27 18 22 28 18 25	7 13 0 0 0 0 11 6	13 13 9 3 2 0	w.	Glison Asphaltum Co. M. M. Smith. Chas. De Moisy, jr. H. C. Wickman. Geo. H. Barney. R. J. Saunders. Post surgeon. J. Peter Naab. Edgar E. Adams. F. J. Weber.
Hanksville Hite Kanab	WayneGarfield Kane	4, 200 3, 000 4, 925	10	49. 2 58. 4	- 1.6	81	14	15		37	2.32	+ 2.56	1.02	0	4	20	11	0	sw.	John P. Hite. Vermillion Arid Farm Association.
Loa	San Juan Wayne Uinta	7,000 7,000 6,225	10	40 8	- 0.3	67 73 73	14 17 2	13 10	21 29 21	43 47 47	2.39 0.16 0.54		. 0.11	T.	5 2 2	16				W. S. McClellan.

TABLE 1.—Climatological data for October, 1911. District No. 9—Continued.

			years	Tem	peratur	e, in	degn	ees Fal	hrenl	heit.	Pre	eipitation	n, in in		days,		Sky.		direc	EL LA
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	20	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	-	Observers.
Utah-Continued.																				
foab	Grand	4,000 7,545	22	52.4 45.4	- 0.9	80 65	15 13	23 19	21†	42 36	2.60 6.31	+ 1.94	1.95 4.10	0	8	17 23	5 4	9	sw.	Henry Crouse. Geo. F. Barton.
iew Harmony	Washington																			. Geo. F. Prince.
rdervilleine Valley	Washington	6,660	1								0.12		0.10	0	2					. F. A. Porter. Mason Gardner.
riceanch	Carbon	5,557 6,700	9	47.0			13	19 18	20†	44	0.40		0.40	0	1	21	6	8	Se.	R. H. Thompson. J. W. Seaman.
an Rafael	Emery										0.51	*******	0.14	0	3	22 22	4	3 5	e.	W. C. Fov.
George	Washington	7,625	21	37.5	+ 2.0	87 69	9 15	25 4	22 20	51 55	0.23	- 0.26	0.18	0	3	18 27	6	3	S.	. A. B. Ballantyne. Bernard Newren.
pringdale unnyside	Washington	3,500	6																	. Hattie Wood.
easdale	Wayne	7,000	3	40.9		70	14	18	21	33	0.05		0.04	0	2	24	0	7		. Henry Cullum. Josiah Shurtz.
hompsons		5,150 7,000	13	50.0 49.6	+ 2.5	71 79	14	27 18	21 21	31 48	1.89	+ 0.16	1.61	0	3	24 16s	5 48	2	sw. nw.	A. M. Starmont. E. P. Bolton.
routcreek Ranger	Uinta	9,200	1								1.57		0.50	6.0	7	16	10	5		. U. S. Forest Service.
ernal	Emery	5,050 4,645	15	44.4	- 2.6	76 72	9	12 20	22 23	43	0.38	+ 0.14	0.63	0	3	26 23	2 2	8	n.	S. P. Trim. D. P. Adams.
New Mexico.							-													
lma		5,500	15	55.6	- 0.5	84	2	21	22	56		+ 1.14	1.45	0	6	20	7 5	4	S.	M. A. Balke.
ragonztec	San Juan	5,856 5,590	12			76	12†	10	22	54	3.30 2.89	+ 1.80	2.00 1.85	0	4 7	22 16	10	5	SW.	M. A. Balke. John R. Milligan. Dr. T. J. West.
ergers Ranch	McKinley	8,000				71p	22†	32p	20†	38p	0.86	*******	0.52		5p					Herman Berger.
loomfield	San Juan	6,500 5,500	16		- 2.2	78	14	16	21†	48	2.35	+ 1.55	1.39	0	5	17	9	5	sw.	R. J. Bauman. Fred Le Clerc.
mbray	Grant	4,215	12			90	1				0.31	- 0.30	0.16	0	3	26	1	4	W.	Agent So. Pac. Ry. W. C. Belden.
lumbus	Luna	4,054	2								0.50		0.50	0	1	24	5	2	se.	Agent E. P. & S. W. R.
emingulce		4,333 6,756	34	62.6	- 0.2	94 72	13	29	22	51 46	1.30	+ 0.61 + 2.09 + 2.15	1.00	T.	3 7	25 17 25 23 29	4 7 2 7 2 2 2	7	W.	G. H. Blakeslee.
ort Bayard	Grant	6,152	36	55.4	- 0.2 - 1.4 - 0.3	72 79 77	13 23 2	11 24 22 28 25	21 22	53	3.31	+ 2.15	1.99	0	7 7	25	2	4	nw.	U. S. General Hospital.
uitland		4,800	18	60. 2	- 0.3	92	1+	22	21 20	40 45		+ 1.00 + 0.62	1.10	0	4 2	23 29	7 2	0	SW.	U. S. General Hospital. Cyril J. Collyer. Agent So. Pac. Ry.
la planting station	Grant	6,475	1 2	53.5		77	1† 3	25	22	36	3.45		2.04	0	6	24 24	0	5 7	SW.	II & Forest Service
aynes	Rio Arriba	4,504 6,600	1								1.27		0.50	0	5	24	0		se.	Agent E. P. & S. W. R. Dr. John R. Haynes.
ermanesordsburg	Luna	4,451 4,245	11	50 2	- 2.4	91	2	32	23	42	0.70	+ 0.92	0.70 0.75	0	1 4	23 22	6 7	2 2	W.	Agent E. P. & S. W. R. Agent So. Pac. Ry.
ına	Socorro	7,300	6	45.0		69	3+	14	22	47	3.78		1.80	T.	4	21	9	1	S.	Charles B. Martin.
nos Altos (near)	do	5,007 7,253	6								3. 22 3. 80		2.15 2.24	0	5 8	22 19	5 7	5	nw. se.	C. Dennis. O. L. Scott.
rattutnam	do	4,415	2																	Agent E. P. & S. W. R. D. Lee Thompson.
drock	Grant	6, 200 4, 150	6								1.94		1.08	0	4	26	0			. Robert H. Woods.
lver City		4,118 5,860	2					23	22	37	0.90 2.81		0.90	0	5	23 26	8	0	n.	Agent E. P. & S. W. R. I E. M. Brumbach.
Arizona.																				
llaires Ranch	Cochise	4, 184	15								1.17	+ .76	.74	0	4	26	3	2	w.	Thos. Allaire.
pinetec	Yuma	8,500 492	13	73.8	- 2.3	100	14	47	224	45	0.50	+ .34	.31	0	3	23	3	5	е.	. U. S. Forest Service. Agent, S. Pac. Co.
ensonsbee	Cochise	3,523 5,500	31	64.5	-1.2	90	3 3	36 36	29†	48 31	1.90	+ 1.22 + 2.18	. 60 2. 05	0	6	23 22	3 4	5	e. e.	Do. Rev. J. G. Pritchard.
owie	do	3.756	35	61.8	- 1.2 - 2.3 - 2.7 - 0.3	92	3	34	29 23	49	2.44	+ 1.78	1.40	0	3	20	7	4	SW.	Agent, So. Pac. Co. H. E. Kell.
nille	Santa Cruz	980 5, 225	20		- 0.3	97	13†	43	31	53	1.08	+ .62	. 40	0	6	25 18	1 8	.5	ne. sw.	R. A. Rodgers.
sa Grandesa Grande Ruins	Pinal	1,396 1,422	29	60 4		105	11	49	21	- ; ; .	1.15	+ .81	.70	0	5	16	9	6	88.	Agent, So. Pac. Co.
vecreek	Maricopa	1,520	4	65.8		93	13†	42 39	31 22	44 50	1.41		. 85	0	6	23 23	3 7	5	W.	F. Pinkley. E. A. Howard.
in Lee	Graham	6,090 8,000	6	50.0		78 66	15	17 31	22 22 29 22 23 31	48 27	1.23 4.13		1.85	T. 0	9	12 22	9 5	10	n.	E. L. Osterman, O. F. M. H. R. Chlarson.
fton	Greenlee	3,584	20	68.0		90	21	43	22	34	3.47	+ 2.39	1.79	0	5	25	1	5		P. Reisinger.
inechise	Cochise	2,300 4,219	11 13	61.2	- 2.6 - 2.0 + 6.8	86	10 13	34 31	31	42 53	3.70 1.86	+ 2.83 + 1.41	1.70 1.05	0	3 2 7	22 24	7 0	7	n.	W. M. Clanton. Agent, So. Pac. Co.
lumbiaurtland	Yavapai	1,900 4,543	12	71.8	+ 6.8	100	12	46	29	42	2.50	+ 1.79	1.20 1.20	0	7	19 13	5 14	7	S.	M. J. Nolan.
s Cabezos	do	5.250	2 3	56.0		78	3†	30	291	45	1.30		.52	0	4	24	0	7	sw.	Agent, E. P. & S. W. Co. N. Erickson.
ouglasdleyville	Pinal	3,930 2,204	8 21	63.7	- 2.5	92 87	3	33 36	31 22	53 42	2.87 3.17	+ 2.82	1.92	0	3 7	25 19	8	3 4	SW.	Dr. F. T. Wright, G. F. Cook.
irbank	Cochise	3,862	2									+ .79	. 47	0	3 8	9	19	3	S.	Agent, E. P. & S. W. Co U. S. Weather Bureau.
agstaff (1)	do	6,907 7,452	20		+ 0.7	72	17	18	22	47	2.68	+ .79	1.02	T.	8	19	5	7	0.	C. C. Moers.
agstaff (2)	Pinal	7,500 1,504	12	43.6	+ 2.6	71 95	17 17†	12	22 4†	51 42	2.66 0.52	+ .02	. 67	0	7	19 16	7 5	5 10	sw.	U. S. Forest Service. Agt., Ariz., Eastern R. R.
rt Apache	Naválo	5,200	40	55.5	+ 0.1	82	3	25	22	50	4.41	+ 3.17	2.25	0	7 5		4	3	8.	Post Surgeon, U. S. A.
rt Huachuca	Maricopa	5,100 737	26 21	71.4	$+0.1 \\ -1.5$	88 98 86	3 10+	50 25 28 47	22 30 31 21†	49 46	3.30 0.05	+ 2.54	2.00	0	5 3	24 25 24 20 26	0	6	nw. e.	Do. Agent, So. Pac. Co.
obeand Canyon	Gila	3,525	10	61.7		86	16+	40	21†	42	3. 27	28 + 2.06	1.24	0	6 2	20	9	2	nw.	Agent, So. Pac. Co. B. G. Fox, M. D.
and Canvon (1)	do	6,866 3,676	8				15	23	30†	40	1.65		1.57	0			4	1	sw.	Agent, G. C. R. R. Co. C. C. Spaulding. U. S. Reclamation Service
anite Reef Dam	Maricopa	1,372 9,200	21		- 1.7	94	13	46	29	39	2.94	+ 2.39	1.75	0	6	25	3	3	sw.	U. S. Reclamation Service.
ereford	Cochise	4, 180	2								2.33		1.50	0	5	19	7	5	SW.	Agent, E. P. & S. W. Co.
lbrookdian Oasis	Navajo	5,069 3,000	22		+ 0.8	82	18	22	21	54	1.07	+ .40	. 54	0	3	26	0	5	SW.	T. Larson. J. Menager.
ake	Gila	2,230	6								2.35		1.35	0	3	24	1	6	w.	U. S. Reclamation Service
ome	Navajo	4,743 6,600	15	50.4	- 8.0	76	12 8	37 18	21 21	30 42		+ 1.45	1.00	0	3 7 7 1	22 17	6	10	nw.	Dr. L. A. Hawkins. D. E. Livesay.
ngmankeside	Mojave	3,326 6,500	9	62.2		94	13	34 21	21 23 23	49 47	1.35		1.35	0	1	20	8	3	sw.	E. I Yule.
wis Springs	Cochise	4,029	2								1.64	+ 2.65	1.65 1.33	0	6 4 2 5	21 17	0	10 3 3 1	sw.	Prof. J. Peterson. Agent, E. P. & S. W. Co.
ricopa	Pinal	1,186	35	71.7	- 0.3	98	91	45	18†	51	1.69	+ 1.23	1.27	0	2	28 23	0	3	SW.	Agent, So. Pac. Co. C. E. Bolton.

TABLE 1.—Climatological data for October, 1911. District No. 9—Continued.

			Pears.	Tem	peratur	e, in c	legre	es Fah	renh	elt.	Prec	cipitation	, in in	ches.	days,	2	Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	PE	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	-	Observers.
Arizona—Continued.		1.1							T.		107									The state of the s
Mesa	Cochise	1,244 538 4,579 4,990	16 12 2 22		- 1.6 - 2.6		13 13	47 52	22† 29	40 35	1.50 0.14 2.46 4.36	+ .98 05 + 2.96	.55 .14 1.70 1.76	0 0 0	5 1 5 6	22 24 26 20	6 5 0 7	3 2 5 4	5W. e. sw. sw.	C. L. Diehl. Agent, So. Pac. Co. Agent, E. P. & S. W. Co. D. G. Goodfellow.
Oracle Osborn Paradise Parker Payson Phoenix Phoenix (1) Phoenix (2) Pinal Ranch	YumaGilaMaricopadododo	4,500 4,676 5,436 345 5,550 1,108 1,092 1,189 4,520	2 5 15 3 17 19 3	69.0 55.7 69.0	- 1.2 - 1.0	100 87 94 96	16 13 13 13 13† 13†	25 33 25 47 40 44	22 22 22† 22† 22 22 29	48 58 49 39 48 43	0.57 2.72 0.05 3.55 2.24 1.58 1.73	15 + 1.89 + 1.17	.41 1.47 .05 1.59 1.16 .74 .71	0 0 0 0 0 0 0	3 5 1 5 4 5	25 14 23 18 20 23 21	2 15 2 4 8 3 6	4 2 6 9 3 5 4	W. SW. SW. e. Se. SW.	W. H. Winters. Agent, E. P. & S. W. Co. J. C. Hancock. M. A. Israel, M. D. M. M. Donald. U. S. Weather Bureau. G. Acuff. Horne & Armstrong. Irion & Craig.
Pinto. Prescott Quartzsite Redrock Redrock Roosevelt Sacaton St. Johns St. Michaels Salome San Carlos San Simon Seligman Seligman Sentinel Silverbell Snowflake Springorville Supal Tempe	Apache Yavapai Yuma Pinal Gila Pinal Apache do Yuma Gila Cochise Yavapai Maricopa Pima Navajo Apache	5, 660 5, 320 800 1, 864 2, 175 1, 280 5, 650 6, 950 1, 875 2, 456 3, 609 5, 219 6, 862 3, 200 1, 165	7 46 4 4 7 4 8 24 4 28 25 7 13 6 4 1 3 7	70. 2 69. 1 51. 9 49. 2 66. 1 61. 5 69. 8 54. 8 72. 4 72. 0 51. 5 45. 0 63. 2	- 2.1 + 1.8 - 2.9 + 3.9 - 0.5	87 96 80 83 94 92 98 87 97 99 80 70	18 8† 11† 13 13 14 2 14 2† 11 17 17 11 17 14 13†	22 36 46 50 36 19 18 37 30 44 29 46 18 14 38	22 22 23 21 21 22 26 25 16 22 25 16 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 22 21 21	54 48 39 30 50 51 45 52 52 48 52 44 43 52 50 35 45	1.50 1.02 0.47 1.65 2.01	+ 1.81 + 1.49 + 1.40 + 1.09	1.50 .47 1.45 1.40 .75 .94 1.00 .43 .26 .90	000000000000000000000000000000000000000	371434453523225425	26 24 23 21 12 21 18 22 22 21 6 24 21 20 27 18 21 22 22 22 23 21 21 21 22 22 22 23 24 24 24 25 26 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27	5 2 6 9 13 7 8 5 5 12 5 7 7 7 2 2 3	0 5 2 1 6 3 5 4 4 3 2 3 4 4 2 10 4 4 11 4 10 10 10 10 10 10 10 10 10 10 10 10 10	SW. N. W. SW. SW. SW. SW. SW. SW. SW. S. SW. S. SW. S.	Mrs. C. F. Henning. J. W. Flinn, M. D. W. E. Scott. W. J. Crowell. U. S. Reclamation Service. E. W. Hudson. A. Shreeve. Rev. A. Weber, O. F. M. Mrs. M. B. Swartz. F. S. Thomas. Agent, So. Pac. Co. Lib., A. T. & S. F. R. R. Co Agent, So. Pacc. U. S. Forest Service. O. C. Upchurch. F. H. Simmons.
Thatcher. Tombstone Truxton Tuba Tueson Tueson (1) Tueson (2)	Graham	2,800 4,550 3,997 4,500 2,390 2,380 2,526	10 16 2 10 3	62.8 62.4 60.4	- 1.7 - 2.0	90 86 87 78 93 92	3 1 13 13	34 37 33 25 35 41	18 28 20† 21 30 18†	48 35 46 43 51 47	2.30 2.40 0.85 1.46 1.23 1.15	+ 1.55 + 1.90 + .85	1.15 1.68 .70 .43	0 0 0	5 4 2 6	22 24 22 17 25 24	5 4 6 4	4 3 3 10 3 5	w. sw. nw. w.	Prof. J. H. Larson. F. N. Walcott. G. A. Dennis. H. P. Marble. Univ. of Ariz. J. M. Robe. U. S. Coast and Geod. Sur
Vail	Yavapai	3,421 3,649 2,072 4,164	12 18 13		- 6.3 - 1.9	88	1 2	32 35	28	44	0. 80 3. 64 1. 43	+ .57 + 2.80 + 1.18	.80 2.47 1.35	0 0	1 3 2	19 19 23	2 7 8 7	5 4 1	sw.	Agent, So. Pac. Co. J. O. Carter. Agent, S. F., P. & P. Ry. Agent, So. Pac. Co.
Williams. Winslow. Yuma. Yuma (1).	Coconino Navajo Yuma	6,750 4,853 141 150	11 31 4	50.0 72.8 67.7	- 3.1 - 0.6	77 101 97	3† 14 14	20 49 39	6 23 23	52 45 52	3. 68 0. 84 0. 67	+ 2.40 + .65	. 94	0	3 2	18 26 26	11 5 1	0 4	n. n.	E. J. Nordyke. J. F. Bauer. U. S. Weather Bureau. A. L. Crane.
Nevada.							-													
Caliente Logan		4,407 1,700	1 4	50.0 63.1		74 90	9† 18	24 34	21† 22†	46 48			0. 03 0. 80	0	1	29 22	0 3	2 6	ne. s.	Salt Lake Route. R. M. Filcher.

*, b, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings,
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 9, Colorado Valley.

Stations.	Watershed.															ay o	-		1 - 1	1	- 1	-	-		1		1		-	1	1	-
Stations.		1	2	3	4	8	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Wyoming.																																
attle Mountain	Snake																															
aniel	Green	.76	.10			.72				. 10	0.0		OR!	- 10													.01					
roon River	do	1.33	. 15		****	.04					T.										T.						T.					
inedale	do	. 24				. 48					T.												****									
Villow Ck. Cabin	do		****										****	****		****				****		****	**	****								-
Colorado.													-	1				1			1						-					
						~										T.				T.	10						T.	. 13	T.	. 02		
	Grand		****			. 29			****		****		T.	****	****	T.				. 32							T.	. 22	T.	. 28		
	White		. 44			1.55	. 32			****											T.									.08		
ascade	San Juan	1.09	.04		.19	2.40	. 13				T.										T.						.09	. 95	. 60			
	Gunnison				.04	2.00	. 20					****		****	****	****												1.03	. 20			
	San Juan Gunnison			****	.52	. 21																					. 05	. 04			T.	
ollbran	Grand	. 38	. 39	.06	. 01	00	ne					10000		300.3	The same				05		.03							. 39	.04		****	****
	Yampa	. 21	. 50	. 30	. 60	2 00	. 09								1				. 05		T.							. 80	. 25			
	Gunnison Grand		****	. 41		2.00	. 95									. 10	. 20			. 44	. 08	.14						. 30	.16			
	Yampa														1													.53	.12			
rawford (near)	Gunnison				.03	1.25	.12							****													T.	.50	T.			
rested Butte	Grand		T.																									. 15			••••	
elta	Gunnison	.55	. 30		.02	1.25	.11														10					T.	T.	.08	.09			
oillon	Grand			T.	:	0 00			T.	T.	7					Т.				. 21	. 10		****					1.06	.16	.06		
	San Juan		.02		1, 16	2.26	****				1.										. 09						.09	. 34	. 09			
raser	Grand				. 46	. 23									T.	T.			. 40		т.					т.	T.	T.	T. T.	T		****
ruita	do	. 23	. 07		. 13	1.36	.03														T.					1.	.17	. 65	.03	T.		
ladstone	San Juan	1.62	T.		T. 11	8.05	16																					. 10	. 20	T.		
Henwood Springs (near).	Grand		1.	****					****		****				1				1		(40						T.	10	.02			
rand Junction	do		.09		. 26	1.03										·			10		T.					****			.02			
randlake	do			.04	· · · ·	1.81							****	****	. 22	A.	****		.10		T.											
rand Valley	do Gunnison	47		.09	T	. 48	02		1												.10								.14			
Iesperus	La Plata				*	. 48 2. 30	. 58														T.						. 20	. 80	.32	. 09		
lorsefly	Gunnison	1.00				1.28	. 64														. 05					****		. 15		. 22		
ronton	Yampa	.74	.05	30	.21	2, 16	.62				10			1							T.						T.					
adoreake City	Gunnison	. 49					0.5																				·	.16	. 03			
AV	Vampa	. 29	. 19			2.07	.16				T.										T.						1.	76	. 03	.10		
fancos	San Juan Grand	1.12	T.	24	.08	9 99	19													1							. 05	.74	.50			
Marble	Gunnison	. 14		. 39						. 20											. 20									. 30		
feeker (near)	White					1.88	.20														T.						01	.60	.02			
Iontrose	Gunnison				. 02	1.49	.16						****			T		***			T.				****		T.	. 35	T.			
NastPagoda	Yampa	70	1 20	T.		1.60	.40			****																						
agosa Springs	San Juan	.33	. 01		. 15	3.67															T.				****			. 14	. 21			
Palisades	Grand	.14	. 18			1.82					TP.										T.								.20			
Paonia	Gunnison Grand					1.26	. 22		****		1.																					
Pitkin	Gunnison	. 46	3				1.00														T.							. 66		.12		
Pyramid	Yampa		. 27	. 34		1.08	. 18				T		****		***						T.											
Rangely	White		.96		.04	1.96	.0				1.			1	1																	
Rico	Dolores	. 15	T.		.37	1.71		.08				T.															.04	. 20		T.		
Rifle	Grand	. 30	. 25			. 91																					.12	. 69	. 04	.01		
River Portal	Gunnisondo	1.05	. 02	06	.00	. 97														T.	. 12						.10	. 64	.12			
Sapinero (near)	Grand	44	1 13	05	. 00	94	1 .19)												T.									. 02			.20
Silverton (near)	San Juan	. 90	T.	.17	. 20	4.05										9				.18					****	****		18		. 03		
Spruce Lodge	Yampa			. 17		1.75	. 40				****		1			T.	1															
Steamboat Springs	San Juan																				T.						10	9		17	T	
Telluride	San Miguel	96	6 . 02	2	. 00	1.57	.2	T.													T.	. 03				****	.17	. 24		.1/		
Terminal Dam	San Juan			0																	1							. 21				
Terrill's Ranch Uncompahgre	Grand Gunnison	T.	.00	7	. 1	3 3. 70	i. i	0				T.									T.							1.20	T.			.10
Plateau.					1	1										T.	1			1	T.		1				T		T.			
Yampa (near)	Yampa			T.		. 79	.2	0			***					1.				1	1	1		****				-	1			
Utah.									1			1										1	-					-	-			
	-					-																			1			81	. 08			
Aneth	San Juan						5				1			-	-	1				1	1		1				. 19	3	21			
Bluff	Green	2	5			5	0			2	0																					
Cisco	Grand				0 1.0	0 .2	0																***								1	****
Desert Lake	Green					6 1 6		9 75													T	****										
Dragon	do		16 16	0																												
	do	1	0 .0	1		3	4																									
Emery	Colorado																											2	. 07	7		
Escalante	do		- 4	· · · ·																								1	90)		
Fisher Valley Fort Duchesne	Grand Green	1	5 1	8		4	0				0	5																				
Fruitland	do	3	0 .3	1 T		0	1				1	4														***						
Green River	do	2	3			8	6																					1.0	2			
Hanksville	Colorado																															
Hite Kanab	do					1.0																								m		T.
La Sal	Grand		4	8	- (*	1.2	8														T						. T.	. 3	. 2	I.		1.
Loa	Colorado	0	5							1	1																					
Manila	Green			2	T																									3 . 0	3 .0	3
Moab Monticello																																
	Colorado																						****							. 0	2	
Orderville	dodo Green Colorado									1	0																					
Pine Valley																				1	1	1	1		1	1		1	1		1	

TABLE 2 .- Daily precipitation for October, 1911. District No. 9-Continued.

		-													I	ay (of mo	nth.							-								-
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	10	20	21	22	23	24	25	26	27	28	29	30	31	Thotal
tah-Continued.																			3									-					0
Rafael	Green Colorado	. 30																										. 20		• • • •	****	****	0
George																																	0
field	Green																																
nnyside	Green		. 04		. 50												****	****	****	••••			****					. 04	.01				1
asdaleompsons	Green		. 26	****	1.61	****																					. 02	T.					1
opic	Colorado	. 28	T.							T.							****				95				****		. 46	. 09					
outcreek Ranger.	Green	. 20	. 50		. 30	. 15		****		. 10	06			****						.02	. 20												
rnalodside	do		. 28			. 38																										****	1
New Mexico.								-							1												00	10	1. 45	15			-
ma	Gila							1	1000	Parent.	1	1		10.7	1			1				V	3 1				T	100	2.00	. 10			
agon	San Juan																										. 02	. 63	. 23		T.		1
rger's Ranch																											. 01	. 29	. 52	. 03	.01		1
ck Rock	do																						1			****	. 02	. 40	30	T.			
oomfield	San Juan Mimbres	. T.			. 24	1. 31										1											. 03	3 .12	2				
mbrayff	Mimbres Gila																										T		m				
lumbus	do Mimbres				. 50																		1			2000	.30)	1.				1
ming	San Juan				. 08	1 7	5		***		***										T.						. 04	4 1. 18	3 .11		. 02	2	-
rt Bayard	Mimbros		. 11	1	1 12	1.9	9 T.														****				****		1 1	. 50	. 33	. 1			1
uitland	San Juan				(2)	1. 1	0																			****	1.	(,)	1 .42				1
190	Mimbres			. 10																							. 0	3 .7	1 . 42	. 1	1		
la Planting Sta'n.	Gila				. 2	1 .5	0																				0	8 . 1	5 . 33				
aynes	San Juan																											T.					-
ermanes	Gilado				. 70	7	5					1														. 00		5	4	7			-
ordsbu r g	do	1			3	2 1. 4	2																				T.	1.2	4 1.8	0 1	3		1
imbres	Mimbres				1	8 2. 1	5																				1	4 .3	8 .4	7 .3	9 .0	2	
nos Altos (near).	Gila			0	9 . 0	12.2	4													-	1	1											-
rattutnam	San Juan																												1.0				
edrock	. Gila				5																							0					
odeo					0	01.5	0				1111	1															1	8 .1	2 .5	1			-
lver City	. Milliores				1.0	-		1	1							1				130	1		1		1								
A rizona.			1											1	1		1			1				1			1		0 2	0			
llaires Ranch	Sonora								1			1	1		8														0 .3				
lpine	. Gila				- 0								1			1111	1										3		1				×
ztecenson	San Pedro.		. 5	0 .6	0 .1	0																								0	5		
isbee	San Pedro.				1	9 2.0	5																	1	* ***				9		4		
owie	. Gila					. 1.4	0															1,,,		1	1000								-
uckeyeanille	San Pedro.		1			9 .9	10																				1	0 .0		-	3		-
asa Grande	San Pedro. Gilado					7	0																* ***				1.0			1			
asa Grande Ruins	. Verde				5	0 .4	6										1							1				5 .8					-
avecreek	San Juan	. 0	9		1 2	5 .3	1 .0	3																			1 0				6 .0		
hlarsons Mill	. San Juan Gila				5																			1	1000				4 1.7				
lifton	do				0	8 1.4	10													-	1	1											
line	. Salt Desert		1		1.0	5																					35 .8	30 .1					0
olumbia	. Agua Fria.		1	5																						1		38 .8	35				
ourtland	. White																									-			3		36		
Oos Cabezos Oouglas				T		8 1.	92																					77 T	3 .8	35	25		
Oudleyville	. Gila				1 6	15	86 . (14													* * * *					1		00 0	02 .4	17			
airbank	. San Pedro.		14 5			18	32								** **				1										66 . 1		02		
lagstaff	do																									-		25	60 .3	16 T			
'lagstaff (2)	do		13 . 1	12	:	23 .	67									**												20 .:	32 T				
lorence	Gila				08	2	25	18 T																					15 1. 2	21 .	45	19	
ort Apache																			K M K M		who we		luna	-					60 .				
lilabend	Gila					110		1																				28	32	43 .	10		0 0
Robe Grand Canyon	Salt Colorado																												- 1.1				**
Frand Canyon (1).	do	100		- 0																				-				02 1	75		1		
Franite Reef Dam	Salt	!	04			21 .	40				** **		** **		**																		
reer	Little Colo																					× 100							05 18 7	63 .	35		4 4
Holbrook	Little Colo																	**	** **	** ***								04	10		30 .		
ndian Oasis	Desert																						1	1.				Г. 1.		60			
erome	Salt Verde			08		20	64																				,	14 1.	00 .		04		10.0
Keams Canyon	Verde Little Cold		25			49 .	58																					16 1.	35				
Kingman	Colorado										** * !											-	-	-	100			35 .	30 .	44 .	05		
Lakeside Lewis Springs	Little Cold			**	1.	03 1	33																					07	42	21			
Maricopa	Gila				1.	24			**																		** **	46		20 .	03		
McNeal	Desert					08 1.	44																					30 .	50 .				
Mesa	Gila					00	00		**		** *																	. 14					
Mohawk Summit. Naco						10 1.	70												** **						**	** **			10 .				
Naco Natural Bridge	Vordo		57			20 1.	76																										
Oracle	San Pedro					12						***							** **									41	. 04	40	11		
Osborn Paradise	Desert					32 1	47															** **				**		. 05					
Parker	Colorado.																				1							T. 1	. 59 .	26	!	Г.	
Payson Phoenix	Verde		27			30 1	. 13																					. 08 1	. 11 .	63 .			
Phoenix (1) Phoenix (2)	do Gila		08			r.	.32 .																			**	***	.05	.74	48			**
***	do					15	.34															** **				40 4							g (i)

TABLE 2.—Daily precipitation for October, 1911. District No. 9—Continued.

															1	Day	of m	onth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Arizona-Contd.																																	
into	Little Colo	T.									1																	. 90	. 15	. 20			1.
rescott	Hassavampa	03	.07	7										1				1	1								. 13	. 61	. 54				2
uartzsite	Colorado	. 00	.01																			1	1				. 40		1. 20				1
edrock	Santa Cruz		1.000		1. 45																					1	.09		95				1
																												1. 50	1 40				14
oosevelt	Salt				1. 20																						1.	1. 30	1. 90				1
icaton	Gila					. 40																					. 08						
t. Johns	Little Colo					1. 45																						. 20	. 17		. 12		
. Michaels	do	. 05			1. 40	. 36													LAKE								. 58	. 26					1
dome	Colorado				. 45																							. 75					1
an Carlos	Gila					. 06	. 94	H																			T.	. 29	. 93	. 10			1
an Simon	do		1000	1			1																								. 50	1,00	
eligman	Verde	1	1	1	. 18																				2000	1		. 41			100		
ntinel	Glla																									1	26		21				1
lverbell	Santa Cruz.				00																												lì
nowflake	Little Colo.				. 90	. 10	770																				. 35	. 64	00				2
					***																										90		2
pringerville	do				. 58	. 50																									. 30		
upai	Colorado																											. 12					(
empe	Salt				. 19	. 57																					. 05						1
hatcher	Gila				. 24	1. 15																						. 03	. 67	. 21			1
ombstone	San Pedro				1.68	. 04				1	1																. 11		. 57				1 3
ruxton	Colorado				. 70																				-								1
uba	Little Colo	21		. 40	95	. 08																			1	1	37	. 43	7	02			
ucson	Santa Cruz.	.01			. 20	. 00																				1		. 40		. 02			1
	dodo		****		. 44														****	****		****					. 05		.30				1
ucson (1)																											. 00						
ueson (2)	do				. 38																						T.	T.	. 21	. 03			1
ail	do					. 80																					0000						1
alnut Grove	Hassayampa		. 17			1.00																								2.47			2
ickenburg	do					. 08																	1. 35										1
illeox	Desert																								1	1							
illiams	Colorado			1	. 90																								. 60	. 20	.94		1 2
inslow	Little Colo			1																							1						
uma	Colorado																								1	1	. 18	. 33	. 33				1
uma (1)	do																								1	1	. 14		. 00				1
Nevada.																										1	. 24						ľ
14 could.																										1							1
aliente	Colorado																											. 03					0
ogan	d0																										1	.80					0
Sent and an annual an annual and an annual an annu															0000			0000					0000	0000	10000			. 00				****	4 8

^{*} Precipitation included in that of the next measurement.

‡ Separate dates of falls not recorded.

| | | Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 9, Colorado Vatley.

		Wyo	ming.						Color	ado.									Uta	ah.						New 1	fexico	
Date.	Dai	niel.		een. ver.	Dur	ango.		and etion.	Guni	nison.	Mee	ker.	Steam		Eme	ery.	Fo		Hi	te.	Mo	ab.	St. Ge	eorge.	Blo		Fo	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	56 45 53 63 42	39 33 30 18 25	68 60 54 65 61	42 33 30 24 40	67 66 59 57 62	50 45 29 34 45	67 68 58 71 57	46 46 34 40 49	75 69 65 65 67	35 37 22 20 30	61 68 56 75 62	48 43 27 25 43	66 66 53 73 58	41 38 28 20 42	69 67 70 65 69	29 21 25 21 27	74 68 71 69 66	49 46 30 30 48	78 75 70 69 73	56 56 42 45 52	77 73 72 69 63	48 59 34 36 36	78 70 75 83 80	58 50 36 39 49	74 73 62 60 67	50 50 32 37 52	76 78 77 73 67	54 47 49 54 53
6 7 8 9	57 63 64 42 44	24 22 25 22 26	60 69 73 73 61	31 25 28 30 34	59 63 64 65 66	34 36 38 33 35	66 69 69 74 63	46 43 45 46 41	64 73 67 65 62	38 37 23 24 22	58 63 67 68 60	39 28 32 32 35	55 67 69 70 60	34 24 25 26 27	67 65 62 63 60	29 20 21 22 20	64 68 77 73 71	35 34 38 33 42	73 77 79 79 74	47 48 49 48 58	70 73 76 76 76 76	40 39 39 46 50	80 81 84 87 75	40 41 44 48 39	57 52 68 70 75	43 39 39 39 40	68 66 64 65 71	44 46 37 36 42
1 2 3 4 5	51 50 49 51 56	27 25 24 20 20	55 59 58 56 61	22 25 26 24 29	65 69 70 71 56	38 34 32 35 35	64 68 71 69 60	34 35 40 37 38	59 60 69 70 68	21 23 27 33 30	63 60 67 69 59	22 22 26 22 35	60 61 63 61 56	19 20 19 18 30	61 62 60 - 62 60	25 20 21 20 21	68 66 69 74 78	47 31 29 30 32	75 78 80 81 74	47 45 47 43 52	71 74 75 79 80	33 35 34 34 45	76 79 83 84 77	32 32 32 35 43	76 75 74 78 72	38 39 32 35 30	72 75 76 75 76	40
6 7 8 9	57 58 41 39 45	21 20 24 7 17	65 61 60 50 41	26 27 23 8 10	63 67 68 52 44	27 29 32 26 23	63 66 69 52 46	35 33 33 30 29	54 56 52 48 47	33 21 16 14 11	58 62 58 45 40	20 20 23 17 17	56 62 49 44 34	14 16 15 15 10	61 59 56 58 56	20 21 20 18 17	69 62 68 63 59	30 25 29 25 25 22	73 76 79 73 59	43 41 44 47 39	68 73 74 68 58	30 32 33 34 29	76 80 82 69 71	34 30 32 32 32 27	68 69 62 72 53	24 25 32 28 20	74 61 76 69 65	3 5 3 4 3
1 2 3 4 5	49 55 57 61 45	10 20 18 23 21	64 70 65 70 60	29 30 25 30 22	45 55 60 64 65	17 19 25 29 30	50 57 59 64 66	23 28 26 29 38	38 54 59 60 55	2 9 8 11 12	43 57 61 61 65	9 12 15 18 26	42 55 62 58 60	12 10 10 19 17	51 52 50 50 48	19 20 20 21 18	60 65 61 60 65	15 18 14 21 29	61 66 70 70 75	37 34 34 38 38	58 60 66 67 71	23 23 25 25 25 37	69 74 73 74 77	33 25 26 30 28	53 60 68 70 73	16 16 20 24 25	60 65 79 72 74	30 20 20 31 40
6 7 8 9 1	39 45 50 40 48 49	13 7 7 7 7 10 11	40 47 56 46 40 55	22 15 26 8 10 22	61 41 50 46 52 55	40 32 32 29 27 29	62 49 57 56 57 58	38 41 39 35 29 35	60 59 57 58 48 39	10 30 31 31 21 12	50 43 55 54 52 50	32 29 16 17 13 17	51 46 55 52 52 46	31 25 17 11 8 10	49 45 49 48 47	18 17 18 17 18	57 51 58 57 64 56	37 28 28 28 37 31 20	78 66 64 65 66 65	39 46 47 42 37 39	70 55 56 56 59 60	36 45 45 36 31 31	78 71 71 72 71 70	34 51 47 39 30 33	68 57 57 58 56 60	40 32 32 28 28 28 40	69 61 50 58 68 68	41 41 31 42 32 33
Mns	50.5	19.9	58.8	25.0	59.6	32.2	62.1	36.8	59. 2	22.4	58.4	25.2	56.8	21.0	58.0	20.8	65.5	31.1	72.3	44.5	68.5	36.2	76.5	37.1	65.7	33.0	69.0	41.

	lun										Ariz	ona.											Nev	vada.
Date.	Bis	bee.	Flag	staff.		ort sche.		d Can-	Par	rker.	Pho	enix.	Pres	cott.	St. Mi	chaels.	San (Carlos.	Tue	son.	Yu	ma.	Lo	gan.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
12 34 5	77 77 79 67 67	58 52 53 58 58	60 56 58 59 56	48 30 26 35 35	80 82 79 80 70	57 59 54 56 43	60 60 52 57 52	36 34 28 35 46	95 87 90 92 97	49 50 49 48 48	86 80 86 74 79	68 58 51 62 60	65 63 68 65 63	49 47 31 37 55	68 83 63 63 75	51 50 32 49 50	90 92 92 92 86 77	48 49 51 48 53	86 84 90 84 82	62 59 52 65 64	90 82 88 88 88	69 58 54 52 58	81 82 80 83 86	52 47 46 44 53
6	67 69 68 70 74	54 50 53 48 51	59 62 66 64 62	30 46 38 32 43	71 75 70 70 74	40 37 44 42 49	55 58 65 64 65	38 32 38 43 37	97 1 97 98 97 97	48 50 48 48 48	85 90 89 89 89	49 57 65 64 61	67 70 73 73 71	33 39 40 40 40	65 68 66 68 68	38 34 35 32 42	78 79 77 79 86	45 46 48 42 43	80 84 84 86 88	56 53 67 61 56	91 98 99 99 90	51 59 65 60 59	86 88 86 84 80	51 49 53 52 47
11	73 76 77 78 74	56 52 51 50 49	63 69 70 69 66	35 29 27 32 40	74 76 80 80 80 78	42 42 38 39 28	64 66 64 71 73	31 30 128 34 44	98 98 100 97 95	40 40 43 44 45	87 88 94 92 93	59 56 56 56 54	71 75 78 78 78 73	37 35 33 38 34	72 71 74 72 68	41 35 31 31 29	87 88 87 89 90	44 47 45 44 45	87 88 92 91 87	56 52 48 52 48	92 94 98 101 97	59 50 58 56 59	82 89 88 80 79	41 42 42 41 53
16. 17. 18. 19.	68 71 77 72 71	43 42 46 50 55	63 72 170 64 58	30 25 28 24 20	78 72 \$76 74 68	31 34 32 31 32	64 66 62 54 42	28 27 27 27 27 24	92 92 93 89 88	40 40 50 39 38	87 89 90 86 82	59 51 53 53 53	79 76 86 72 72	29 31 32 31 28	68 70 68 67 52	26 27 30 28 21	88 87 86 87 88	39 36 37 35 36	83 87 88 86 82	49 55 41 44 48	89 98 98 98 88	58 57 57 52 56	84 85 90 87 82	45 42 42 39 36
21 22 23 24 25	63 64 67 72 74	47 40 43 48 51	47 56 64 64 62	24 18 20 28 27	63 70 69 70 72	26 25 28 32 36	46 54 64 62 60	24 27 24 25 28	89 88 88 88 88	38 33 35 35 35 38	78 83 84 85 84	47 47 50 51 56	60 67 72 71 71	28 22 26 32 35	53 63 66 66 65	18 19 21 26 30	87 87 81 80 81	35 36 34 32 34	79 79 84 85 87	49 49 51 46 51	81 86 90 88 86	53 52 49 55 56	80 78 82 82 80	35 34 34 41 36
26. 27. 28. 29. 30.	65 61 58 57 58 63	48 48 45 36 40 40	57 44 47 52 55 56	35 36 29 26 23 23	72 62 66 62 60 64	34 38 45 47 33 30	65 62 60 58 56 54	27 27 26 25 23 23	87 87 88 84 84 84	60 60 58 58 58 58	70 68 64 71 75 78	57 57 51 48 51 48	68 63 52 60 61 68	41 42 33 30 28 28	64 64 50 55 53 57	32 36 37 37 35 27	82 68 60 73 74 72	30 39 42 32 30 31	78 76 70 69 71 78	52 55 54 41 41 41	86 79 71 78 82 85	50 61 36 53 54 54	79 68 75 75 75 74 75	43 53 44 44 43 45
Mns	69.5	48.9	60.3	30.4	72.2	38.8	59.8	30.5	91.7	46.3	83.1	55.0	69.4	35.0	65.3	33.2	82.5	40.5	79.8	55.4	89. 5	56.1	82.0	44.2

^{*,} b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

^{17166—11——8}

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT NO. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

GENERAL SUMMARY.

The month of October was, as a rule, favorable for all interests in the Great Basin. Comparing the average weather of the month for the district as a whole, October was cold and dry. The temperature averaged nearly 4° colder than, and the precipitation averaged nearly 1 inch less than that of October of last year. Killing frosts were reported everywhere in the district.

About the average amount of sunshine was recorded. For the district there was an average of 20 clear, 6 partly cloudy, 5 cloudy, and 2 rainy days.

TEMPERATURE.

The monthly mean temperature for the district was 46.2°, which is 2.4° below the normal, only the long record stations being considered. Temperatures below normal were the rule throughout the district, the negative departures ranging from a few tenths to 6.5°. Reno, Nev., was the only station reporting a positive departure, but that was only 0.3°. The monthly means were highest in the southern half of the Nevada area and in the sheltered valleys of the Utah area. The lowest means were recorded in the Wyoming and Idaho areas.

The highest monthly mean was 59.4° at Jean, Nev., and the lowest was 35.5° at Cokeville, Wyo.

The temperatures from day to day were notably equal, there being no periods of continued heat or cold. The highest temperatures occurred generally during the first half of the month on various dates, but for the most part on the 7th, 8th, and 9th. The highest temperature was 89° at Low, Utah, on the 13th. The lowest temperatures, on the other hand, occurred generally during the last half of the month but centering around the 21st.

The lowest minimum temperature reported was 5° at Cokeville, Wyo., on the 29th.

The greatest monthly range of temperature for the district at any station was 77° at Carlin, Nev., where the highest was 84° on the 7th and the lowest 7° on the 18th. The greatest daily range was 63° at Carlin, Nev.

PRECIPITATION.

The precipitation for the district averaged 0.79 inch, which is about one-half the normal amount. The larger amounts fell, as a rule, in the Wyoming, Idaho, and Utah areas; while the lesser amounts occurred in the west-central portion of the Nevada area. In the Utah area the heaviest precipitation occurred in the northern portion, where a great many stations received more than 1.5 inches; while farther south the departures were below normal, particularly in the extreme south. In the Nevada, Oregon, and California areas only a few stations reported amounts above normal, and a number of stations reported only traces or no precipitation whatever.

Practically all the precipitation occurred during the first half of the month, the 1st, 2d, 10th, 11th, and 12th being the dates on which the most moisture fell. On the 26th and 27th numerous storms occurred in the southern portion of the Nevada area. The greatest monthly amount was 2.71 inches at Corinne, Utah; and the greatest in 24 hours was 1.45 inches at Moroni, Utah.

The snowfall was light and scattering, occurring for the most part in the mountainous regions. The greatest monthly amounts of snow were 9 inches at Lundy, Cal., located in the west-central portion of Mono County; and 8 inches at Deer Park, Cal., near the north end of Lake Tahoe.

TABLE 1.—Climatological data for October, 1911. District No. 10, Great Basin.

			year	Tem	peratur	e, in	degree	es Fah	renh	eit.	Prec	ipitation	, in in		days,		Sky.		direc	
· Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Wyoming.	Titata	6,085		40.14	10	70		7	29	54*	1. 20	+ 0.21	0.70	4.0	5	164	5a	Qa	w.	S. W. Condron.
okeville	do	6,204 6,860	9 2 15	35. 5	- 1.0 - 2.0	62	14 1† 8	7 5 11	29 21	41	0.86	+ 0.20	0.55 0.51	6.0	5 5	24 21	5 6	94	w. sw.	E. J. Tuckett. Frank Tucker.
Idaho.	Bear Lake		9								1.00		0.38	0	4	23	4	4		F. W. Boehme.
raceveston	Bannock Bear Lake Opeida	5, 400 5, 946 4, 460	3 5 15 14	43.0	- 1.6 - 1.9	71	9 2 9	18 12 17	23† 19† 21†	45 42 43	1. 79 0. 99 1. 35	+ 0.06 + 0.16	0. 85 0. 50 0. 56	6.0	5 5 4	23 22 16 24	9	9 6 6	n. w. sw.	Donald R. Shirk. John Norton. Wm. J. Chatterton.
Ulah.	Utah	4,900	14	47.0						40	1.02		0. 53		2 3	26	2	3	ow.	T. F. Carlisle.
eaverlack Rockurrville	Beaver	6,000 4,872	8 11	47. 2 45. 8 42. 2		76 78 72	13† 14 13	18 11 11	21 30 21	53 50	0.17 0.17 0.38	- 0.83	0.06 0.10 0.25	0	2 2	19 22	11 3	6	sw.	James Connell. W. D. Livingston. F. R. Curtis.
astle Rock	Summit	6, 244 5, 750	8	49. 9		74	9†	24 13	21	34	0.81		0.30	0		18 25	11	2	SW.	
enterlarkston	Cache	4,240	41	48.6	- 2.8	75	8		30	47	2.71	+ 1.69	1. 35	0		14	5	8	n.	Parley Dalley. L. C. Peterson. W. J. Griffith. A. C. Murphy. Samuel W. Western.
eseret	Millard	4,541	17		- 2.0	80 77	14	21 16	30 29	47	0.79 T.	+ 1.69 + 0.25	T.	0	0	26 24	7	0	n. s.	Samuel W. Western. John Day. W. Harden Ashby.
airfieldarmington	Davis	4,866 4,267 5,100 7,318	11 21	46.4	- 3.7 - 1.3 - 6.0	75	9 8	24	30	33 50	1.02 2.30 1.39	+ 0.96 + 0.42	0. 95 1. 40 0. 72	0		19 25	8	2	sw. nw.	Charles Boylin.
			17	43. 4	- 6.0	83 76	9	22 10	21 20	46	0.31	- 0.41	0.31	ő	1		10000			J. J. Starley. Essen Nordberg. E. M. Smith.
rantsvillerouse Creek	Tooele	5, 277	8	45. 4 48. 8			9	20 25		35 33	1. 26	+ 0.53		0	2 2	20	1	10	n.	Walter James. Geo. E. Greene. J. C. Woodsmansee.
rouse Creek	Boxelder	5.606	18	43. 2	- 1.9	75	7	12	21	50	1. 23 1. 14 1. 03	- 0.24	. 0.49			20 25 12	1 7	5 12	n. s.	Philip Paskett. John Crook.
enefer	Summit Weber	5,301 4,436	12	44.0	- 1.0	76		12	30	50	1.21	+ 0.07	0.50		. 4	21	5	5	nw.	William Brewer.
leber. lenefer. looper. bapah (near) nternational ssepa.	Tooeledo	7,500 5,370	6					30	30	40	1.56 0.96			0	. 3	14	14 12	3 12	se. n.	J. S. Lawton, I. S. R. Co. Geo. K. Hubbell.
oy	Juab			48. 4			8	20 21	30 22	37	0.35		. 0.20		. 2	7 22 25	5		n. s.	Samuel Hagans. Joseph Jenson.
anosh	Millard Boxelder	5,250	33	46. 6	- 1.1	75	11		15	42	1.07 0.40	- 0.09	0.55	0	1	7	21	3 2	sw.	Geo. Crane. F. W. Klock.
emayevanogan	Juab	5,010	21	45. 9	- 1.5 - 1.9	68 72 74	1 8 9	25 22 20 25 27 18	22† 21 21 22 22 28	31 44 34	0.35 0.75 1.14	- 0.44	0.55	0	3	25		4	w. sw.	Agent S. P. Co. William Brown. Utah Experiment Station.
owucin	Tooele	4,507	20	51. 4 44. 6		. 89	13 13†	27 18	22 28	39 58			. 0.45	0	1 4	25 24	6	0 3	n.	Agent W. P. Co. C. J. Burke.
und	IronSanpete	5,086 5,575	17		- 1.0		13	17		45	0.63	- 0.21	0. 51		3	22	3	6		Job F. Hall. J. M. Anderson.
faple Creek	Summit	6,750 6,180	7 12	44 0	_ 2 2	79	13	12	30	52	1. 47		. 0.65	1.5	4	24 12 20	9	10	nw. n.	Jas. Woolstenhulme. John W. Henry.
Meadowville	Rich	6,200			- 2.2 - 2.3		9	15		39	1.35	- 0.04	0.75	3.7		22	3	6	n.	John W. Henry. J. S. Moffatt. T. H. Franklin.
didlakedidvale	Boxelder			53. 4 46. 6		72	7	20	201	24	1.69		. 0.99	T.	3	22 21 25	9	1	n-s.	Agent S. P. Co. Jos. Williams. Agent S. P.,L. A.& St. L. R
dilforddillvilledilnersvilledil	Cache	4,962 4,848 5,070	16 14								0.00 1.76 0.24	+ 0.18	0.73	0	3	12	18	1	8.	Fred Yeates. George Roberts, Sr.
fodena	Iron	5,479 5,068		46. 1				18		44	0.04	- 0.78	0.03	0	2	18	10	3	W.	U. S. Weather Bureau. W. Visick.
doroni		5,519	3	47.4		71				37	1.68 1.19 0.92		1.45 0.86 0.57	0	2	19 23 22	6 4	3 2 3	sw.	B. F. Eliason. Roy P. Curtis. D. C. Walkey.
fount Nebo Vephi (near) New Castle	Juab	4,650	10 8	45.2	0.7	74	1†	25	201		0.02	+ 0.29	0.31							S. Boswell. T. W. Jones.
Oak City	Millard Weber	4,900 4,310	7	47.8		. 76	9	25	19	37	1.16		. 0.80					3		Peter Nielson. A. Van De Graff.
Park City	Summit Boxelder	7,800	14					14		51	0.85		. 0.62	0		23	0 0	8 10	nw.	Gertrude Evans. Thomas Stirland. Alex. Matheson.
Parowan Payson Pelican Point	Utahdo	5,970 4,637 4,600	8		- 1.1	75	41		21	45	1.46	+ 0.02	0.89			24			sw.	D. L. Coombs. B. M. Mendenhall.
ine Cliff Ranch	Summit	5,907	15	41.6	h - 3.1	71	16	13	171	51	0.34		0.30				8	2	8.	J. H. Harrison.
romontory	Boxelder Utah	4,913 4,532	40 23	47.5			8†	12	30	49	1.39	+ 0.43	0.75	0	2	22	9		n.	James A. Oliver. William Rex.
RandolphRevier	Rich Salt Lake Sevier	6,442 5,350		45.7		. 79	7	18	21	42	0.55		0.20		4					E. L. Terry. Joseph J. Jensen.
Richfield Richmond altair	Salt Lake	4, 220	9	48.8	a	73	91	28	30	35	2.41 2.11		. 0.82		6 3	19	7	5		J. R. Thompson. E. J. Bench.
salt Lake City	Millard	4,360 5,260	38 18	50.0 46.0		77	8	31	21	37 55	1.65 0.60	- 0.72	0.40		. 3	22	3	6	n.	U. S. Weather Bureau. Thomas Memmott. J. L. Stark.
Silver City	Utah	6,127 4,585	2	50. 2		79		24	21 21	38	0.65 1.82 0.93		. 1.16	T.	2	28	2	1 2		W. P. Shippee. F. W. Cater.
Chistle	Tooele	5,075 4,900	20	42.8	- 6.5	75	8	11	30	45	1.10	+ 0.57	0.62	3 (3	19	10	2	n. ne.	John Thorgeirson. E. A. Bonelli.
Vernon	Tooele	4,500	7								0.64		0.56	0.4	3	24	6	i	nw.	Glynn Bennion. J. S. Cooper.
Wendover Whisky Creek Woodruff	Millard							28												T. B. Perkins.

TABLE 1.—Climatological data for October, 1911. District No. 10—Continued.

			years	Tem	peratur	e, in	degre	es Fah	renb	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	- E	Number of clear days.	Number of part- ly cloudy days.	Number of	1004	Observers.
Oregon.																				
Burns	Harney	4, 157	20	43.2	- 1.4	66	7	19	2	43	0.13	- 0.44	0.09	0	2	24	3	4		J. C. Welcome, ir.
Cliff	Lake	4,300	4																	John C. Green.
Paisley Silver Lake		4,500	8 14			74	7	26	27	31	0.45		0. 19	0	3	20	6	5	nw.	E. C. Woodward. L. W. Charles.
Culifornia.					Page (HI-I	- 4999
Tahoe	Piacer		1	41.0		66	7	20	21	34	0.01		0.01	0.1	1	25	3	3	w.	R. M. Watson.
Truckee		5,819	40		- 1.1	70	6†	20 20	10	46	T.	- 1.03	T.	0	0	7	22	2		
Nevada.														-						100
Austin	Lander	6,594	22													100	100			F. O. Booe.
Battle Mountain	do	4,843	40	48.7	- 0.9	80	1†	14	21	52	0.10	- 0.34	0.10	0	1	22	7	2	w.	Southern Pacific Co.
Beowawe	do	4,905	40			82 84	13				0.12			0	2	22 26	1	4	w.	Do.
Carlin		5,232	40	44.2	- 0.6	84		7 25 18	18	63	*****			0		30	0	1		Do.
Carson Dam Cherry Creek	White Pine	4,032 6,450	3	49.6			8† 13	25	21	43	T. 0.20		T. 0, 20	0	0	21 21	8	7 2	e. W.	U. S. Reclamation Service
Clover Valley	Elko	6,000	11		- 2.6		13	15	21 30	47		+ 0.16	0.20	0.5 T.	3	21	4	5	W.	J. H. Leishman. I. F. Wiseman.
Columbia		5,750	4				161	26	111	43			1.30	0	1	24	4	3	se.	A. Booth.
Dutton	Elko	. 100	3	1																Golconda Cattle Co.
Elko	do	5, 432	40																	E. J. Clark.
Ely	White Pine	6, 421	20				-::-													Rev. G. C. Hunting.
Eureka		6,500 3,965	8	48.8		73	12	19	19 21	43	0.65		0.45	2.5	3	19	3 2	9	n. ne.	Clay Simms.
Fernley	Lyon	4.200	38		- 1.4		81	20 18	211	59	0.60	+ 0.36	0.45	0	3	22	4	5	ne.	U. S. Experiment Station. Mrs. G. A. Steele.
FernleyGardnerville	Douglas	4,830	11	20.0		0.		10		00	0.00	1 0.00	0.40				1			Wm. Dangberg.
leyser	Lincoln		7	43.6		79	141	10	261	60	0.00		0.00	0	0	14	15	2		Mrs. J. F. Wambolt.
Glenbrook	Douglas		2																	C. C. Henningsen.
Golconda	Humboldt		32 18	45.4	- 5.2 - 3.3	78	101	17	20	55	T.	- 0.36	T.	0	0	25 21	3	3	SW.	Southern Pacific Co.
Halleck	Elko	5, 631 2, 074	3				8	6 31	28 23	54 48	0.46	1	0.36	T.	. 2	21	8	2 2		Do. Salt Lake Route.
Lahontan	Churchill		0	52.6		82	14	31	22	40	0.06		0.04	0	2	26	2 5	4	SW. W.	U. S. Reclamation Service
Lewers Ranch	Washoe	5,500	23		- 0.7	78	16	24	101			- 1.57	T.	0		21	7	3	w.	Ross Lewers.
Lovelocks	Humboldt	3,977	17	46. 2	- 5.8	78	8	28 24 19	10	52	0.05	- 0.18	0.05	0	1	21	5	5	S.	C. H. Allender.
Millett	Nye		3	44.8		78	7	10	21	59	0.15		0.15	0	1	21	3	7	8.	Fred J. Jones.
Mina	Mineral	4,600	4	52.6			81	24	21	50	0.01		0.01	0	1	25 14	1	5	S.	Southern Pacific Co.
Potts Quinn River Ranch	Nye Humboldt	6,990 4,850	18		- 4.2		16 7†	10 11	21 21	48 63		- 0.15	0.15	0			7	10		Miss Mamie Potts.
Rebel Creek (H)	do	1,000	0	46.2		80	8	11	28	61	0.42	*******	0.42	0			3 4	6	n. n.	F. M. Payne. E. J. Hyatt.
Reno	Washoe	4.532	40		+ 0.3	80	8	11 27 24	28 10	45		- 0.30	0.09	0		20	7	1 4	W.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	4	50.0		82	8	24	21	45	0.05		0.05	0	1	17	8	6	nw.	U. S. Reclamation Service
recoma	Elko	4.812	33	44.9	- 0.9	74	8	17	191	49	0.05		0.05	0	1	11	10	10		Southern Pacific Co.
Conopah	Nye		6	49.6		71	17	27	10	27	0.40		0.38	0	3	20	8	3	se.	U. S. Weather Bureau.
Wabuska	Lyon	4, 347	8	40.0							0.00					1:::				Vic Bernard.
Wells	Elko	5, 631	32	40.2	- 5.6		8	8	30	55	0.60	- 0.03	0.30	1.0		11	12	8		Southern Pacific Co.
MILIBRITACOB	Humboldt	4, 432	32	46.2	- 2.4	79	8	17	20	51	0.22	- 0.30	0.19	T.	2	19	3	9	ne.	U. S. Weather Bureau.

*, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; mean are computed from observed readings

† Also on other dates.

TABLE 2.—Daily precipitation for October, 1911. District No. 10, Great Basin.

Stations.		-												-		,										-		1	1	1	1	-	व
AL ITATION IN	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Wyoming.																																	
order	Bear	. 23										.10														****							1.
	do	. 24		.21							. 35	.01	.03								.14						. 12						0.
									1		1.00				1		- 345		-								-						
Idaho.							1										- 1							3						1	100		10
eneva	Bear	.38									.28	.31						.03															. 1.
race	do	.15								.50	. 52	.85	.01					****		****		****			****			****				****	1.
	do	.20	. 54									.05																					. 1.
Utah.																		177															
otun.										1 3							13			-	- 1							13	1				
lpine	G. S. Lake Sevier Lake.		. 49		.,	06		****			. 53											****											0.
lack Rock	do					.00				.10																							. 0.
urrville	do										. 25						,									.:		.13					. 0.
astle Rockedar City	G. S. Lake Desert					97				****	.30								****		****	****				****	****	.24					0.
enter	do		.10								.47			10000	In a a a																		. 0.
larkston	G. S. Lake	*	1. 36								1 90						****																2
orinne	Sevier Lake.									.45	1. 30	10000																					. 0.
nterprise	G. S. Lake																											T.					1
airfield	do		.07							. 95	1 40										****					****			****		****		2
armington	Sevier Lake.		.72	.08		.07					.60																						. 1
risco	Desert	. 31																															. 0
arrisonovernment Creek.	do		. 43		****	****					.83			****																1			i
ranger	C Q Lake		26							1.07																							. 1
rantsville	do Desert		.30								. 93											• • • • •											. 1
rouse Creek	G. S. Lake	.50	.06							.11	.49										T.												. 1
enefer	do		.30								. 50										.01						T.						- 1
ooper	do	.02											1.10	. 22																			. 1
papah (near)	Desert G. S. Lake		. 57						1	1::::	.99																						. 1
oepa	Desert	. 20									.76																						- 0
inction	Sevier Lake.	.15				T.					.07		****			****			****			****	****	****				.00	2 .0	4		1	- 0
anosh	do		. 55								. 52																						. 1
elton	G. S. Lake	.40											****																				. 0
emay	Desert Sevier Lake.	.10	. 12		****	.08	. 25				. 55		****	1				1					****		1								. 0
ogan	G. S. Lake	. 29	. 28							. 48																							- 1
ow	Desert	. 20	.10								.48																1						. 0
ucinund	do								1					1																			. 0
anti	Sevier Lake.	.08				T.					. 51			***							T.												. 0
aple Creek	G. S. Lake		. 68			.03					.79		****				1				T.	****			1111		1	1		133			. 1
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leadowville	G. S. Lake	. 15	.10			T.						.75								40.000	. 35												. 1
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illord	Sevier Lake.		.51								7		****	****								****			****		1	1	1::::	1	1	1	1
fillville	G. S. Lake Sevier Lake.	.52 T.	. 01	****			1	1	1	1	2																						. 0
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forgan	G. S. Lake Sevier Lake.	.20	.03								1 4					****			****				****									1	. 1
losida	G. S. Lake.	. 20	. 33								.86	3																					. 1
ount Nebo	do		. 35							. 57	1		***										****	****									- 0
ephi (near)	Desert								****	****																							
ak City	Sevier Lake.		.36								. 80																						- 1
gden	G. S. Lake	***	.10								T																	1	1	1000	1	****	. 0
ark City ark Valley	Desert		.10				1111	1	1	. 62																							. 0
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aysonelican Point	G. S. Lake																		****			****	****	****			1			1			1
ine Cliff Ranch	do																			Same.			tures a										: (
into	Desert										.40											0000	10000					.0					1
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ichmeldiehmond	G. S. Lake	. 57	.80	.07							.82	. 14	.01																				
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TABLE 2.—Daily precipitation for October, 1911. District No. 10—Continued.

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rns Mill	do	. 09		.07	. 02					. 02					.15																		
ristmas Lake	do	. 38	.07		. 29					.07				T.	. 03					****													
I	do																												Inne				
mond	do	. 07	.04		. 12		****		****	. 58	T.				****								****										
t Rock	do	15		. 25			****			T.		****		.07	****	****				****						T.							
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ney rans		. 21	. 24		.26	.04			****	.00		****		.01		****	****		****	****	****	****	****			****	T.					T.	П
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a	do	T.			T.					. 01																	T.						
r Park				. 40						. 40																	T.						
n Alpine	da	40	al .	2																													
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elds's ranch	East Walker	T.			.10					T.																	T.					T.	1
er Creek	East Carson.	T.							. 01											T.	T.												J
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odfords	West Carson	.12																								.16	. 09						1
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nn River Ranch	Humboldt	T.												****				****															
el Creek	do									. 55	.10																						
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ith	West Walker	.07		T.																					****		. 07					T.	
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oma	Humboldt				·						. 00				****																		
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llslow Point	Humboldt	.20																							****								-
now Point	Little Hum-	. 04		****	.09										****			****															-
	boldt. Humboldt	-	T.							. 19		1		1			1								1	1		1	1		1	1	
nemucca																																	

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 10, Great Basin.

	- 73		Qua.												Nevad	a.												
Date.		rns, reg.	Ch	erry eek.	E	ko.	Eu	reka.	Fai	llon.	Je	an.	Love	locks.	Mil	lett.	М	na.	Qui Riv ran		Re	no.	Tece	oma.	Tono	opah.		oca.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1 2 3 4 5	62 58 54 50 60	24 19 28 32 34	61 50 60 55 60	39 30 28 32 33			60 47 57 63 55	36 29 28 39 29	62 66 69 62 65	39 31 27 32 37	77 76 72 80 72	46 45 45 50 50	59 60 62 62 60	37 25 22 28 31	63 54 65 67 62	30 32 16 38 32	70 58 67 70 -65	45 38 31 37 40	65 58 66 63 66	43 34 17 33 39	54 60 69 55 63	39 34 29 39 34	65 60 58 65 65	30 22 30 25 35	61 48 58 62 54	38 32 36 35 34	62 55 65 63 65	30 22 22 31 31
6 7 8 9	64 66 59 54 57	28 33 30 28 30	65 70 73 68 47	29 32 35 32 31			66 70 69 55 60	30 36 32 26 23	73 79 83 67 57	28 29 47 44 23	78 80 86 85 71	45 50 51 55 43	65 73 77 64 55	26 30 35 40 19	71 78 74 65 55	21 22 40 40 20	72 78 80 73 59	32 38 50 47 48	72 81 81 75 50	21 24 31 35 31	74 78 73 53 58	33 35 41 37 27	71 72 74 60 45	25 27 25 42 31	63 68 67 57 49	42 47 46 31 27	72 79 79 52 55	2 2 3 3 3
1 2 3 4 5	60 62 61 64 60	28 33 34 32 26	58 69 74 65 57	27 29 32 44 28			68	30 47 35 23 29	67 73 83 70 65	23 26 32 37 29	78 81 86 86 77	36 36 39 42 47	61 68 76 68 65	21 25 24 45 30	65 74 72 77 69	15 16 21 33 28	69 75 78 72 70	25 32 39 29 34	63 72 74 64 74	22 25 26 45 19	67 76 74 70 65	28 31 35 40 35	58 65 70 69 60	36 38 30 26 30	58 64 67 67 63	34 43 46 47 39	61 72 75 65 65	2 2 2 3
6 7 8 9	58 56 62 63 61	24 21 24 21 19	68 69 61 48 49	27 40 35 23 23			59	30 35 27 19 21	72 78 67 58 62	27 30 34 27 25	77 85 82 74 72	43 37 40 48 33	77 72 65 62 60	31 27 39 30 22	74 77 66 59 62	19 22 23 24 15	79 80 76 69 65	29 31 35 38 30	78 77 64 61 65	22 24 40 19 16	77 80 69 62 65	33 36 36 33 28	60 70 55 54 70	24 27 29 17 22	68 71 65 55 58	42 52 45 34 36	72 73 61 56 58	2 2 2 2 2 1
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6 7 8 9 0	59 62 60 61 58 56	23 26 28 30 26 32	54 57 58 57 61 55	42 30 29 21 20 20			62 62 59 59 62 59	30 24 24 23 24 24 34	68 63 65 68 60 54	42 31 27 29 26 33	78 65 67 71 71 73	39 45 46 43 37 36	67 64 62 65 60 51	23 24 26 24 24 24 24	67 63 63 64 55 52	37 29 11 18 15 24	73 62 63 65 65 60	44 42 34 29 33 33	65 70 75 73 68 65	39 38 12 18 19 41	50 63 66 67 63 54	44 35 30 33 33 34	58 60 62 68 64 63	41 28 23 24 18 29	57 46 54 55 53 47	41 36 39 39 43 33	62 63 64 66 63 00	4 3 1 2 1 3
Ins	59.5	26.8	60.7	30.0			62.6	29.1	67.2	30.4	76.4	42.5	64.8	27.7	66.1	23.4	70.0	35. 2	68.8	26.7	66.1	33.9	62.6	27.2	50.5	39.6	64.8	27.
			Wyo	ming.												i Trigg	Utah.											
Date.	Bor	der.	Evan	ston.	Wes	ton.	Cori	lnne.	Des	eret.		ern- Creek.	Wend	lover.	Mar	ys- le.	Mead vil		Mode	ens.	Log	an.	Paro	wan.	Pro	vo.	Salt 1	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	71 65 62 65 60	41 35 32 20 25	62 58 49 56 60	42 34 29 26 30	67 60 56 63 67	49 36 32 28 28	70 70 62 66 65	31 37 31 33 38	70 54 60 71 67	45 38 29 34 38	67 66 57 67 60	44 32 30 35 36	70 64 71 64 70	52 52 50 33 50	69 57 60 70 55	35 40 25 34 35	65 52 50 60 56	45 30 30 25 30	62 53 58 65 59	38 36 28 32 39	67 48 56 67 63	47 37 36 34 36	69 70 62 75 61	30 32 25 32 35	74 60 60 70 70	40 36 31 30 39	71 55 60 68 62	52 32 42 43 48
6 7 8 9 0	63 69 72 70 56	24 25 22 26 31	60 67 72 71 61	27 26 31 28 28	64 69 72 73 59	31 30 32 40 33	73 80 79 80 73	35 33 33 36 35	69 72 76 75 57	34 30 35 44 35	63 67 72 75 59	32 34 40 40 32	72 68 72 65 68	48 35 40 35 39	62 74 74 70 60	29 28 37 43 31	58 59 70 71 64	28 27 31 42 32	65 68 69 70 57	32 29 35 39 28	64 67 73 74 47	37 36 39 47 31	66 63 75 73 64	34 34 34 40 31	70 72 78 77 67	33 29 32 40 36	64 66 77 76 50	44 43 49 39 32
1 2 3 4 5	70 78	32 32 25 24	50 58 68 60 50	29 26 24 27 23	47 62 70 64 58	37 33 30 36 27	65 65 60 75 67	33 30 31 35 33	65 67 73 77 61	28 28 28 42 32	56 64 70 67 56	30 32 36 44 25	70 73 72 75 76	39 40 42 41 44	63 68 78 76 58	23 24 26 31 37	49 54 56 59 59	33 34 26 25 26	64 70 73 74 59	24 26 29 36 35	50 62 65 62 55	32 37 38 40 31	64 71 78 75 60	28 31 34 35 34	63 70 76 78 77	26 27 28 35 28	60 66 74 64 53	35 39 42 46 36
6 7 8 9 0	61 60 55	18 18 16 17 11	60 57 50 41 38	20 20 28 18 18	68 65 66 51 51	25 27 27 19 27	67 65 60 62 68	30 30 31 30 26	63 60 53 53 54	26 29 24 23 17	65 52 46 45 46	28 29 20 22 25	74 77 63 53 55	43 38 35 33 30	65 74 62 49 45	24 24 27 23 15	62 60 60 41 40	28 26 - 25 15 24	62 74 64 50 54	27 30 34 27 21	58 64 50 47 46	31 34 36 27 28	65 75 66 56 54	27 30 34 26 22	61 70 56 55 50	24 25 27 19 22	62 64 52 48 49	36 38 40 34 34
1 2 3 4 5	59 55	11 12 17 25 24	46 51 58 57 62	11 15 18 21 28	50 56 61 61 57	17 20 25 24 32	66 62 66 61 60	28 30 23 30 34	61 70 65 72 61	19 23 25 31 33	49 56 64 61 66	20 25 34 32 37	69 57 56 60 62	38 33 29 35 34	53 61 61 65 70	13 15 20 23 26	43 49 58 54 61	15 18 25 25 25 31	52 60 65 65 67	18 18 26 31 28	49 56 63 60 54	25 28 29 34 39	55 52 66 67 67	20 23 27 29 31	55 60 70 67 75	18 19 21 25 29	50 55 63 63 63	31 32 35 41 42
6 7 8 9 1	46 47 53 51 55 52	31 13 9 7 8 23	47 40 52 53 50 55	30 19 15 17 12 27	58 58 58 55 54 54 58	35 31 19 17 17 33	58 56 55 56 55 55 58	34 37 28 37 21 34	62 61 60 62 64 71	33 25 18 16 28 26	47 54 53 52 57 58	42 29 27 24 25 31	58 60 61 59 58 59	32 34 30 31 29 28	64 55 61 59 60 59	28 31 25 18 12 25	46 43 44 47 48 52	33 20 19 18 18 29	57 58 59 58 61 59	34 38 33 27 19 31	49 52 55 53 50 57	39 34 30 26 27 32	61 59 61 59 60 62	34 35 39 28 21 30	65 70 63 60 60 65	37 30 21 20 12 26	58 55 55 54 59 58	47 41 37 -35 33 40
		21.9	55.6	24.2	60.6	28.9	65.3	31.8	64.7	29.5	59,3	31.4	65. 5	197	63.1	150	54.5		62.3		57.5		64.9		66.8			

^{*,} b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

October in California is as a rule a month of much sunshine, little rain, and moderate temperature. In many respects it is the pleasantest month of the year. In the northern counties the rainy season begins with occasional showers, seldom heavy, and the rain is always welcome after the long dry period. In the central and southern counties the month is often a succession of dry warm days. The present month was normal, except that there was even less rain than usual, and the temperature was slightly below normal and also cooler than October, 1910.

There were no special disturbances. Near the close of the first decade a small depression passed rapidly southeastward over the Sierra, causing showers in the Great Valley and Bay section. No damage resulted to the raisins and other curing fruits, inasmuch as ample warnings were sent to all interested parties. The most noticeable feature of the second decade was the persistence of an area of high pressure over the Great Basin, causing north to northeast surface winds in the Great Valley and north winds in southern California. On October 16 the following high temperatures occurred: At Los Angeles, 94°; San Diego, 82°; San Francisco, 87°. At the last-named city this was the warmest day of the year. A maximum temperature of 95° was registered on the thermograph in the kiosk, located in one of the city parks. It is interesting to note that on the same date a temperature of 77° was recorded at the Southeast Farallon Island; 87° at Point Reyes Light, and 82° at Mount Tamalpais.

The high persisted until the middle of the third decade, when it moved slowly eastward. A southern storm developed over the Valley of the Colorado on October 26, causing showers in the territory south of the Sierra Madre.

ing showers in the territory south of the Sierra Madre.

The foehn effect referred to above in connection with the persistent high is not unusual, and attention has been previously called to this feature of California weather. The condition has also been noted during winter months, especially December.

The month as a whole must be regarded as very favorable from an agricultural standpoint. Fruit drying, raisin making, and the thrashing of beans were not interfered with to any great extent. When showers threatened ample warnings were given and wherever possible crops were gotten under cover. The great bulk of the crop was safely harvested. There was sufficient water for all purposes, the supply holding out well. There was a very light snowfall. The total for the month at Summit was only 3 inches, which rapidly melted. The month

closed without any snow on the ground.

There was one storm which, while properly speaking, did not occur within the boundaries of District No. 11, should not be passed over without notice. At the close of September a depression of some depth was noted over Nevada and southern California. Whether this depression had any direct relation with the conditions prevailing over the Northwestern States of Mexico and the peninsula of Lower California is not known, owing to the absence of

reports; but a severe storm prevailed October 2, 3, 4, and 5, and much damage was done to shipping on the west coast of Mexico. Both in the Gulf of California and in the Pacific Ocean winds of hurricane velocity were experienced by vessels. It is reported that at Magdalena Bay three large stone warehouses were unroofed. At Guaymas on October 5 a tidal wave occurred, destroying many buildings, chiefly, however, adobe houses. The custom-house, with several hundred thousands dollars' worth of contents, was destroyed. It is reported that 27 vessels were wrecked, more than 40 lives lost, and that many miles of railroad track were washed away between Guaymas and Hermosillo.

TEMPERATURE.

The mean temperature for the State was nearly 1° below the normal. The following table gives the mean temperature for California during the time for which such records have been kept:

Year.	Mean.	Depar- ture.	Year.	Mean.	Depar- ture.
	° F.	° F.		° F.	°F.
1897	58.5	-1.4	1905	60.7	+0.8
1898	61.0 58.1	+1.1	1906	63. 4 62. 0	+3.4
1900	58.8	-1.1	1908	58.3	-1.6
1901	63.2	+3.3	1909	60.2	+ .:
1902	60.7	+ .8	1910	61.9	+2.0
1903	64.0	+4.1	1911	59.1	1
1904	61.6	+1.7			

The highest temperature reported at any station was 108° at Lemon Cove on the 8th. This was the same as the highest temperature reported during October, 1909 and 1910. The lowest temperature was 13° at Tamarack on the 2d, which was 2° lower than the lowest reported during October, 1910.

The highest mean temperature was 73.7° at Bagdad, and the lowest mean temperature was 38.2° at Tamarack. The elevation of this station is 8,000 feet. The mean temperature at Summit, elevation slightly over 7,000 feet, was 44°; and at Fordyce Dam, 6,500 feet, 43°. At Bishop, elevation 8,500 feet, the mean temperature was 42°. It is of interest to compare these high-level temperatures with those of the floor of the valley, which as a rule exceeded 60°.

PRECIPITATION.

The average monthly precipitation for California for October is as follows:

Year.	Mean.	Departure.	Year.	Mean.	Depar- ture.
1897	Inches. 1.79 .59 3.50 2.34 1.50 1.78 .49 2.74	Inches. +0.17 -1.03 +1.88 + .72 12 + .16 -1.13 +1.12	1905	Inches. 0. 12 . 09 1. 56 1. 37 1. 66 . 83 . 58	Inches1.56 -1.550026 +.0070 -1.00

Twenty-three stations reported no rain. The greatest monthly amount was 4.11 inches at La Porte. Considering the section as a whole the rainfall was deficient. The distribution, both in time and locality, was more uniform than is generally the case in October. The greatest snowfall was 14.5 inches at Tamarack, or about the same as last year.

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Per cent of possible.	Stations.	Hours.	Per cent of possible.
EurekaFresnoLos AngelesMount TamalpaisRed Bluff	178 324 283 267 272	52 93 81 77 79	Sacramento	277 290 244 288 273	80 82 70 83 78

There was slightly more sunshine than during the same month of the preceding year.

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN VALLEYS FOR OCTOBER, 1911.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—There was practically no difference between the average stages of October and those of the preceding month in the Sacramento River above Red Bluff, and from Sacramento City to the mouth of the river. At Colusa and Knights Landing the river averaged from three-tenths to five-tenths of a foot higher than during September. The river, however, was generally below the October normal, especially during the last decade of the month.

Reports from the American River at Fair Oaks show that this stream averaged below the October normal, and that there was practically no current in the river after the 15th.

The various forks that drain the higher regions of the Yuba-Feather territory carried less water than for any month since that of September, 1908, but there was little departure from the usual October normal at any point in

the Yuba itself below its first fork or in the Feather below Oroville.

There was a deficiency in rainfall throughout the Sacramento watershed.

The Natomas Consolidated Co. is engaged in the construction of levees along the east side of the Feather River from Vernon to Marysville. This company is also closing all breaks in the levees on the south side of the Bear River, which, in future, will confine the water to this stream and prevent its overflow into the American Basin.

All levees that protect the Colusa Basin from the Sacramento River have been repaired or strengthened, and Reclamation No. 108, which now comprises 53,000 acres in the Colusa Basin, is throwing up back levees of unusual proportions as a protection against the drainage of the Coast Range foothills. These back levees will roughly parallel the Coast Range and will extend from Knights Landing Ridge to a point near Colusa. On the west side of these levees there will be a canal 17 feet deep and 150 feet wide which, it is thought, will be sufficient to carry the maximum discharge of all streams between Stony and Cache Creeks.

The river station at Monroeville has been abandoned, and a new station has been established in the Sacramento River at Jacinto, which is nine miles below Monroeville and nine and one-half miles below the mouth of Stony Creek.

San Joaquin watershed.—Excepting the San Joaquin River above Friant, where the extreme low water was practically reached, and the Tuolumne River, which was the lowest ever recorded during any previous October, or during any month, except September, 1909, all streams in this watershed maintained higher stages than those usually recorded during the month in question. This was notably so of the Stanislaus below Melones, the Merced below Merced Falls, and the San Joaquin between Mendota and Antioch. The run-off in the Calaveras was the greatest ever before known in October, and at no time during the month was Mormon Slough dry between Bellota and Linden.

A new river station has been established in the Mokelumne River at Bensons Ferry, which is just below the point where the Cosumnes and Mokelumne join.

New gages, to replace those washed away during the floods of last winter, have been installed at Lathrop and Bellota.

TABLE 1.—Climatological data for October, 1911. District No. 11, California.

Station. Counties. \$\begin{array}{c} \begin{array}{c} \			Com	years	Tem	peratur	e, in	degre	ees Fal	rent	neit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc	to no hoches od
Clameth Agency Kimanth 4,100 25 44 75 8 12 29 56 .	Stations.	Counties.			Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1	0	Total.	Departure from the normal.		Total snowfall, unmelted.		Number of clear days.	Number of part- ly cloudy days.	Number of		Observers.
Camera Priside Control Camera Priside Camera		Klamath	4 160	3	44.4		76	5	19	954	50				0		90	,		n.w	Edean C. Watson
Second Collisions Collisi	Clamath Falls	do	4,100	22						201	90		******								W. H. Heileman.
California. Madoc. 4.00 Tulano. 200 Tulan	derrill	Klamath	4,070	5									*******					****			Mrs. Agnes Ritchson.
Allenedis.	onna	do	4,146		44.8		72	6	16	28	50	1.09		0.46	0	4	16	12	3	S.	Jacob Ruecke.
Page	lameda	Alameda						18†	39												
Section Continue	ngiole	Tarlore	900	111	46. 9		79		18	21†	56	0.37		0.20	0	3		6			Santa Fe Co.
Solution	ntioch **	Contra Costa	102	26		+ 6.9															Southern Pacific Co. Do.
	rrowhead Springs	San Bernardino	2,000	2		******															Dr. E. Soegaard.
same and the second of the sec	walon	Los Angoles		1	63.5		91	7	51	13	31	0.25		0.25	0	1	28	1	2	W.	T. S. Manning.
Sale Deligner	zusa	San Bernardino	540 784	8	66.0		102		42 53	23	29	0.13	- 0.68					0	2		A. P. Griffith. Santa Fe Co.
Serbelley	akersfield	Kern	404	22	65.6	- 0.4	93	13	47	3	42	0.00	- 0.47	0.00	0	0					Do.
Section Sect	terkelev	Alamada	217	24	59.1	+ 0.2	84	16	46		28	0.73	- 1.04	0.53	0	4	18	10	3	nw.	State University.
simply reset 1.00 1	iggs **	Butte	4 450		62. 2	- 0.2	81	16		21			- 0.90	0.57	0	2	25	0	6		
Section Color Co	lishop Creek	Humboldt	8,500	1					22									0			Paul E. Lodge.
Transcomb Mendecino 2,000 11	lue Canon	Placer	4,695	12	53.2	+ 1.9	80	17	29	2	36	1.19		0.57	2.0	3	24	3	4		Southern Pacific Co.
Image: continue 196 27 70 4 91 27 71 72 23 3 24 91 27 71 72 28 28 28 28 28 28 28	lythe	Riverside	2 000	11	54.5		100	16	31	10	44	2,49	- 3.33				25				A. J. Haun.
Santa Ciara 1.00 1.	rawley	Imperial	2 140	2 7	70.40		97	141	41	22†	47	0.24		0.24	0						M. D. Witter.
Sales Colored Service	urney	Shasta	3,300	1	47.8		77	16	24	3†	49	1.38		0.68	0	4	17	9	5	sw.	Mrs. M. D. Chambers.
Salate S	aliente **	Kern	1,290	35	71.6 62.4	- 2.4	72	25	46 52	7+	40	0.00	- 0.47			0	24	0			
State	alistoga **	Napa	363	39	55.0	- 5.0	82	19	34	1+	47	0.84	- 1.44	0.79	0	2	25	0	6		Do.
State	amptonville (near)	Yuba	3,500	4	59.3		88	16	34	2	36	1.51		0.58	0	6	15	11	5		Cal. Gas & Elec. Co.
hina Plat. Humboldt. 600 2 55.0 85 7 36 10	edarville.	Modoc	4.675	41	62.0	- 0.3	78	16	26 38	2†	46	0.31	- 1.29 - 1.10				24	4			G. H. Stephenson.
loverdale Sonoma 340 8 06.6 92 125 37 13 54 0.51 0.22 0 0 3 26 2 3 8. John O. Ogle. obliss. Place** 2, 421 40 38. 8 - 2.7 8 317 35 3 36 1.43 - 0.94 0.36 0 0 2 25 4 2 n. Sonoma 0.22 0 0 3 26 2 3 1 7 n. Souther Pacific Co. Ditus. ** **Coluss.**** Coluss.*** 60 2 59.1 ** **Coluss.*** Coluss.** 60 2 59.1 ** **Coluss.*** Coluss.** 60 2 59.1 ** **Coluss.*** Coluss.** 60 2 59.1 ** **Coluss.** 60 2 59.1 **	hina Flat	Humboldt	600	2	56.0		85	7	36	281	45	0.73		0.20	0	5	21	6	4	w.	O. I. Westerburg.
loverdale Sonoma 340 8 70,6 92 18 37 13 54 0.51 9.22 0 3 20 2 3 5. John O. Ogle.	ISCO **	Placer	5, 939	40	45.6	- 1.1	65	21	28	1		0.50	- 1.76	0.50	5.0	1	21	0	10		Do.
oldax. Placer. 2, 421 40 56,8 = 2.7 85 177 35 5 36 1.43 - 0.94 0.36 0 6 23 1 7 n. Southern Pacific Co. outsides. Column and the property of th	loverdale	Sonoma	340	8	60, 6		92	18	37	13	54	0.51		0.22	0	3	26	2	3	S.	John O. Ogle.
orning ** Tehama	olfax	Placer	2,421	40	56.8	- 2.7	85	17†	35	5	36	1.43	- 0.94	0.36	. 0		23	1	7	n.	Southern Pacific Co.
avisville. Yolo. 51 39 69.4 - 5.5 91 16 34 27 47 0.05 - 0.82 0.05 0 1 24 6 1 n. S. H. Beckett. ever Creek Nevada. 3,700 4 50.8 S 715 27 24 81.57 0.061 0 5 24 3 4 Cal. Gas & Elec. Co. el Monterny	orning **	Tehama	977	25							1										Southern Pacific Co.
avisville. Yolo. 51 39 69.4 - 5.5 91 16 34 27 47 0.05 - 0.82 0.05 0 1 24 6 1 n. S. H. Beckett. ever Creek Nevada. 3,700 4 50.8 S 715 27 24 81.57 0.061 0 5 24 3 4 Cal. Gas & Elec. Co. el Monterny	aunt	Tulare	4,000	4	56.4		88	16	29	2	50	0.68	- 1.07				26	C	5		D. L. Wishon.
Selfar Shasta	Pavisville	Yolo	51		59.4	- 5.5	91	16	34	21	47	0.05	-0.82				24	6			
Penalr StanIslaus 126 11 60.7 -2.8 88 7† 35 31 44 0.00 -0.55 0.00 0 0 28 0 3 Santa Fe Co.	el Monte	Monterey			61.8		87	16	44	6	36	0. 52		0.22	0	2	24	0	7	w.	H. R. Warner.
Distribution Siskiyou 2,285 22 52,6 + 0.2 78 167 35 37 1.64 - 2.82 0.76 0 6 20 0 11 n. Do.	enair	Stanislaus	126	111	60.7	- 2.8	88	7†	35	31	44						28	0	3		Santa Fe Co.
District Siskipon 2, 285 22 82, 6 + 0.2 78 167 35 37 1, 64 -2.82 0.76 0 6 20 0 11 n.	lobbine	Vuha	1,650	7	63.1		96	18	42	2†	40	1.69		0.43			11		1 2	S.	Cal. Gas & Elec. Co.
Surfain Stute St	unnigan **	Yolo	68	34	69. 2	- 0.1	85	17	52	31		T.	- 1.03	T.	0	0	29	0	2	n.	Southern Pacifie Co.
Cajon San Diego	urnam	Butte	160	16	60.0	- 0.2	90	16		2	46	0.73	- 0.93	0.25	0	3				S.	R. W. Durham.
resno. Fresno. Fresno. 293 24 63 8 -0.9 91 16 41 31 40 0.09 -0.44 0.08 0 2 26 5 0 w. U. S. Weather Burea ruto ** Glenn. 624 22	Cajon	San Diego	482 725	12	64.3	+ 0.1	97	16	38 42	23	51	0.28	- 0.22			2	29 25		5		H. H. Kessler.
resno Fresno 293	lsinore	Riverside	1,234	16	63. 4	- 2.2	97	16	34	22	55	0.15	0.37	0.15	0	1	25	5	1	nw.	A. F. Schult.
resno Fresno 293 24 63.8 - 0.9 91 16 41 31 40 0.09 - 0.44 0.08 0 2 26 5 0 w. U.S. Weather Burea Glenn 624 22	scondido	San Diego	657	17	62.9	+ 1.4	99	16	35	23	57	0.05	- 0.42	0.05	0	1	5	25	1	w.	A. R. Moon.
resno Fresno 293	armington **	San Joaquin		25 32	53. 4	+ 0.3	73		41	11		1.68	- 1.22 - 0.79		0	7	25	5			U. S. Weather Bureau Southern Pacific Co.
resno Fresno 293 24 63.8 - 0.9 91 16 41 31 40 0.09 - 0.44 0.08 0 2 26 5 0 w. U.S. Weather Burea Glenn 624 22	olsom	Sacramento	252	39	61.7	- 2.3	91	16	40	5	40	0.27	1. (9)	0.15	0	3	21	2	8	n.	F. O. Hutton.
resno. Fresno. 283 24 63.8 - 0.9 91 10 41 31 40 0.09 - 0.44 0.08 0 2 25 5 0 6 W. O.S. Weather Bures of Glenn 624 22 Southern Pacific Co. alt ** Sacramento 49 33 62.3 - 0.7 81 47 45 17 0.30 - 0.77 0.15 0 3 26 5 0 8 sw. Do. earlier Bures of Glenn 121 22 Southern Pacific Co. alt ** Sacramento 2,650 38 59.4 - 4.2 88 16 34 27 37 1.61 - 1.80 0.64 0 7 25 0 6 H.D. Jerrett. Blroy ** Sacramento 3,300 1 57.4 100 19 29 10 55 2.55 1.06 0 6 20 7 4 s. A. Dannenbrink Co. lennyille Kern 5,500 1 54.6 80 16 36 23 5 0.27 0.027 0 1 22 5 4 W. C. H. Likely old Run Placer 3,322 12 59.2 - 2.3 85 177 36 2 35 0.27 0.027 0 1 22 5 4 W. C. H. Likely not call the same of the sacrament of the	outs Springs	Colusa	1,650	7	56.0		87	16	31	2+	44	0.24		0.10	0	5					A. J. Burgi.
eorgetown El Dorado 2,650 38 59,4 - 4,2 88 16 34 2† 37 1.61 - 1.80 0.64 0 7 25 0 6 H. D. Jerrett. Blroy ** Santa Clara 193 37 57.6 - 2.7 95 17 40 3† 0.58 - 0.54 0.50 0 3 25 0 6 8e. Southern Pacific Co. Blta Siskiyou 3,300 1 57.4 100 19 29 10 55 2.25 1.06 0 6 20 7 4 s. A. Dannenbrink Co. lennville Kern. 5,500 1 54.6 80 16 36 2 35 0.27 0.27 0 1 22 5 4 w. C. H. Likely. Old Rum. Placer 3,322 12 59.2 - 2.3 85 17† 36 2 34 1.27 - 2.04 0.52 0 5 24 1 6 n. Southern Pacific Co. onzales ** Monterey 127 12 57.6 † 0.2 78 12 40 3 0.00 - 0.66 0.00 0 0 Do. rass Valley Nevada 2,690 39 56.3 85 16 33 2† 35 1.42 - 1.23 0.55 0 6 19 9 3 sw. F.R. Hull. reenville Plumas 3,600 17 49.3 - 0.4 81 16 22 11† 55 0.41 - 2.39 0.37 0 2 22 2 2 7 8w. C. H. Higble. roveland Tuolumne 2,828 2 55.6 84 16† 31 5 38 0.66 0.35 0 3 23 8 0 H. S. Richardson. uinds ** Yolo 350 13 67.7 † 5.4 83 14 51 27 0.03 - 1.12 0.03 0 1 14 12 5 Southern Pacific Co. anford Kings 249 11 57.8 - 5.0 85 8† 32 11 45 0.02 - 0.21 0.02 0 1 24 5 2 Sants Fe Co. earlst Mendecino 1,800 1 56.1 84 13 34 25† 45 1.35 0.40 0 4 21 4 6 nw. H. D. Elimaker. elber Imperial20 5 71.0 98 14 45 22† 47 0.37 0.37 0 0.37 0 1 26 5 0 w. C. J. Booth. elber Imperial20 5 71.0 98 14 45 22† 47 0.37 0.37 0 0.37 0 1 26 5 0 w. C. J. Booth. elber Imperial20 5 71.0 98 14 45 22† 47 0.37 0.37 0 0.37 0 1 26 5 0 w. C. J. Booth. elber Imperial20 5 71.0 98 14 45 22† 47 0.37 0.38 0.11 0 2 26 0 5 W. C. J. Booth. elber Imperial20 5 71.0 98 14 45 22† 47 0.37 0.38 0.11 0 2 26 0 5 W. C. J. Booth. elber Elbert Southern Pacific Co. of Springs Tulare 3,300 4 56.0 83 8 36 1† 41 0.12 0.11 0 2 26 0 5 W. C. J. Booth. elber Lake 2,250 4 55.8 8 91 5 30 10 49 0.77 0.35 0 4 8 19 4 nw. H. J. Elimaker. elber Elbert Elbert Elbert Elbert Elbert Elbert Elb	ruto **	Glenn	293 624	24 22			91	16	41	31	40	0.09	- 0.44	0.08	0	2	26	5	0	w.	Southern Pacific Co.
Siskyou	alt **	Sacramento	49	33	62.3	- 0.7	81	4†	45	1+	37	0.30	- 0.77			3	26				Do.
Siskyou	ilroy **	Santa Clara	193	37	57.6	- 2.7	95	17	40	3		0.58	- 0.54	0.50	0	3	25	0	6	88.	Southern Pacific Co.
onzales **. Monterey 127 12 57.6 + 0.2 78 12 40 3 0.00 -0.66 0.00 0 0	lennville	Kern	3,300 5,500	1	54.6		100	19	29 36		55 35						20 22			S. W.	A. Dannenbrink Co. C. H. Likely.
rass Valley Nevada 2,690 39 56.3 85 16 33 27 35 1.42 - 1.23 0.55 0 6 19 9 3 sw. F.R. Hull. reverville Plumas 3,600 17 49.3 - 0.4 81 16 32 111 55 0.4 1 - 2.39 0.37 0 2 22 2 7 7 sw. C. H. Highle. roveland Tuolumne 2,828 2 55.6 84 16† 31 5 38 0.66 0 0.35 0 3 23 8 0 H. S. Richardson. Inford Kings 249 11 57.8 - 5.0 85 8† 32 11 45 0.02 - 0.21 0.03 0 1 14 12 5 Southern Pacific Co. anford Kings 249 11 57.8 - 5.0 85 8† 32 11 45 0.02 - 0.21 0.02 0 1 24 5 2 Sants Fe Co. ealdsburg. Sonoma 110 18 60.7 + 1.3 95 15† 36 2 51 0.54 - 2.04 0.40 0 2 16 10 5 s. F. J. Kinley. earst Mendocino 1,800 1 56.1 84 13 34 25† 45 1.35 0.40 0 4 21 4 6 nw. H. D. Ellmaker. eber Imperial -20 5 71.0 98 14 45 22† 47 0.37 0.37 0.37 0.1 26 5 0 w. C. J. Booth. etch Hetchy Tuolumne 3,665 San Benito 284 37 59.6 - 1.0 94 16 37 11 47 0.22 - 0.53 0.11 0 3 18 7 6 w. J. N. Thompson. ornbrook** Siskiyou 2,154 23 49.5 - 2.6 73 25† 33 22 0.38 - 0.67 0.20 0 2 2 8 0 3 Southern Pacific Co. of Springs Tulare 3,300 4 50.0 83 8 36 1† 41 0.12 0.11 0.2 2 6 0 5 Southern Pacific Co. of Springs Tulare 3,300 4 55.0 88 9 15 30 10 49 0.77 0.35 0 4 8 19 4 nw. H. P. Betterlore, Univilled near) Lake 2,250 4 55.8 8 91 5 30 10 49 0.77 0.35 0 4 8 19 4 nw. H. P. Betterlore, Univilled near 1 1 2 2 2 2 3 3 5 2 3 3 6 4 4 1 2 3 4 2 4 4 5 2 2 3 3 6 6 4 3 4 1 4 1 1 2 3 1 4 4 5 1 4 1 2 4 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 5 1 2 3 4 5 1 4 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 5 1 2 3 4 1 4 4 5 1	old Run	Placer	3,322	12	59. 2	- 2.3	85	17†	36	2	34	1.27	2.04	0.52	0		24				Southern Pacific Co.
eber	rass Valley	Nevada	2,690	39	56.3		85	16	33		35	1.42	1.23	0.55	0		19		3		F. R. Hull.
eber	roveland	Tuolumne	3,600 $2,828$	2	49.3	- 0.4	81	16 16†	22 31	111	38	0.66				3	22	8			C. H. Higbie.
eber	uinda **	Yolo	350	13	67.7	+ 5.4	83	14	51	27		0.03	- 1.12	0.03	0		14	12	5		Southern Pacific Co.
eber	ealdsburg	Sonoma	110	18			95		36	2	51	0. 54	- 2.04	0.40	0		16	10	5	8.	F. J. Kinley.
etch Hetchy Tuolumne. 3,665 F. W. Brown. F. W.		Mendocino			56.1		98		34 45	25† 22†	45	1.35					21 26	5	0		C. J. Booth.
ombrook** Siskiyou. 2,154 23 49.5 - 2.6 73 25† 33 22 0.38 - 0.67 0.20 0 2 28 0 3 Southern Pacific Co. of Springs. Tulare. 3,300 4 56.0 83 8 36 1† 41 0.12 0.11 0 2 26 0 5 U.S. Forest Service. ullville (near) Lake. 2,250 4 55.8 89 15 30 10 49 0.77 0.35 0 4 8 19 4 nw. T.H. Betterton. lyllwilld. Riverside. 5,250 10 51.1 - 5.9 72 25 29 3 36 0.43 - 0.60 0.43 0 1 25 3 3 sw. Earl Powers.	etch Hetchy	Tuolumne	3,665																		E. W. Brown.
Oct Springs	ornbrook **	Siskiyou	2,154	23	49.5	- 2.6	73	251	33	22				0. 20	0	2	28	0	3		Southern Pacific Co.
lyllwild. Riverside. 5,250 10 51.1 - 5.9 72 25 29 3 36 0.43 + 0.06 0.43 0 1 25 3 3 sw. Earl Powers.	ullville (near)	TulareLake	3,300		55.8		83	8 15	36 30	10		0.12				2	26		5		U. S. Forest Service. T. H. Betterton.
dio. Riverside20 33 72.7 -2.7 102 15 45 22 45 0.00 -0.08 0.00 0 0 26 5 0 se. F. N. Johnson. eskip. Butte. 4,975 4 52.6	iyllwild	Riverside	5, 250	10	51.1	- 5.9	72	25	29	3	36	0.43	+ 0.06	0.43	0	1	25	3		SW.	Earl Powers.
skip Butte	adio	Riverside	-20	33	72.7	- 2.7	102	15	45	22	45	0.00	- 0.32	0.00	0	0	26	5	0		F. N. Johnson.
ne 🏎	skip	ButteAmador	4,975		52.6			15†	32	21	26	1.00		0. 91			18 24 29	8 2 0	5 2		Cal. Gas & Elec. Co. Southern Pacific Co.

TABLE 1.—Climatological data for October, 1911. District No. 11—Continued.

			years	Temp	perature	, in c	legre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	William - I
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of part- ly cloudy days.	N umber of cloudy days.	-	Observers.
California—Continued.																-				
King City Lake Eleanor La Porte Le Grand Lemon Cove Lick Observatory Lick Observatory Lodi Lone Pine Long Valley Los Angeles Los Banos McCloud Maedoel Maedoel Magalia Magmoth Tank	Tuolumne Plumas Merced Tulare Santa Clara Alameda San Joaquin Inyo Lassen Los Angeles Merced Santa Clara Siskiyou do	3,410 4,258 5,270	24 1 17 11 16 22 40 29 6 2 34 24 24 1 4 2 7	48.6 63.7 65.8 53.8 61.2 55.2 47.2 66.4 66.3 61.1 47.6 43.7 43.6 58.6	+ 2.1 + 0.4		25 8 16 16† 18 18 7 16 17 16 16 18 14 17 15 17	25 19 40 40 35 38 31 23 51 52 25 21 19 34 48 38 42 44 42 33 42	30 2 2† 5 2 2† 11 11† 10 28 5† 3† 21 3 1† 24 12	48 43 35 36 42	0. 43 0. 42 0. 63 0. 25 0. 16 0. 00 0. 55 1. 53 1. 21 0. 38 1. 44	- 0.74 - 3.34 - 1.24 - 0.75 - 1.45 - 0.42 - 1.00 - 0.58 - 0.35 - 1.75 - 1.75	0.05 2.50 0.00 0.30 0.22 0.35 0.63 0.26 0.16 0.00 0.26 0.52 0.50 0.38 1.00 0.50	5.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 3 3 2 1 2 1 0 4 6 3 1 3	29 24 31 21 23 24 28 17 18 25 23 18 19 17 23 26	0 10 4 6 6 3 5 11 0 2 13 6 6 4	3 0 0 6 2 1 0 9 2 6 6 0 6 8 4 5	8. N. W. N. W. S. SW. SW. N. S. N. N. S. N. W. W.	Southern Pacific Co. O. J. Todd. Chas. W. Hendel. Santa Fe Co. G. W. Sandidge. The Director. E. G. Still. Ezra Fiske. G. F. Marsh. A. G. Evans. U. S. Weather Bureau. Southern Pacific Co. F. H. McCullagh. F. F. Spencer. Butte Valley L. Co. J. H. Williams. Butte Co. R. R. Co. Southern Pacific Co.
Magalia- Mammoth Tank Marysville- Mecca. Mecca. Menlo Park ** Merced. Mill Creek (1) Milton (near) Modesto **	Calaveras	660	40 5 33 7 4 20 39 34	61.8 61.8 55.0 63.6	- 3.2 - 4.3 + 2.6 - 3.0 - 0.6	90 102 86 80 83 89	7† 16 16		23 10 3 2† 9	43 46 30 41 34	T. 0. 20 0. 00 0. 80 0. 18	- 0.70 - 0.81 - 0.51 - 1.05	0.26 T. 0.10 0.00 0.31 0.18	0 0 0 0 0 0 0	2 0 2 0 5 1	26 25 25 29 24 24 24	0 6 0 2 3 6	5 0 6 0 4 1	n. nw.	Do. E. A. Palmer. Southern Pacific Co. Sante Fe Co. Cal. Gas & Elec. Co. J. H. Southwick. Southern Pacific Co.
Mojave Mokolumne Hill Mono Ranch Montague Monterey Monterio Mount Tamalpals Napa City Napa (S. H.) Needles Neelle Newada City Newada City Newada City Newada City Newman Newman	Ventura Sisikiyou Monterey Kern	3,210 2,450 15 4,500	18 5 23 46 12 12 12 34 33 19 2	70. 2d 54. 8	-12.6 + 3.9 - 5.9 - 2.6 - 2.9 - 1.3 - 1.5 0.0 - 2.0	80 90 83 80 88 80 82 91 92 94 86	11† 16 16 7 16 4 16 16 12 8 16	28 40 33 26 42 42 41 37 40 49 31 28	18† 2 30 21 27 10† 1 3† 2† 23 28	25 50 45 35 43	0.07	- 0. 25 - 1. 01 - 0. 58 - 0. 46 - 0. 61 - 1. 91 - 0. 99 - 0. 93 - 0. 04	0.00 0.71 0.11 0.40 0.18 0.30 0.20 0.32 0.43 0.07 0.75	000000000000000000000000000000000000000	0 2 2 7 3 3 3 2 2 1 1 5	28 20 27 20 25 25 17 0 19 30	0 4 0 7 4 4 9 31 10 0	3 7 4 4 2 2 5 0 2 1	n. se. nw. nw. s. sw.	Do. C. E. Pringle. Herbert Lathrop. I. E. Deboy. Southern Pacific Co. John C. Knecht. U. S. Weather Bureau. Alex. Hull. W. H. Martin. Santa Fe Co. T. O. Bailey.
Newastle Newhall ** Newman Nimshew North Bloomfield North Fork Oakdale ** Oak Grove Oakland Oceanside Ojai Valley	Nevada. Madera. Stanislaus. San Diego. Alameda. San Diego.	3,200 3,000 156	19 18 34 22 7 14 7 17 1 35 1 5	61. 6 66. 5 56. 0 56. 6 57. 0 61. 0	+ 0.8	93 94 87 84 81 89 90 92 82 82 99	18 17 7† 15 7 17 17 15 16 7	38 47 32 38 31 40 34 46 47	27 31 10 10 24 44 54 2 21 18	29 38 26 51 50 30	1. 23 0. 28 T. 1. 64 0. 50 0. 30 0. 27 0. 49 0. 38 0. 33 0. 14	- 0.87 - 1.31	0. 40 0. 28 T. 0. 96 0. 50 0. 30 0. 27 0. 30 0. 19 0. 32 0. 05	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 3 1 1 1 1 2 3 2	25 27 31 22 19 21 26 28 19 19 28	2 0 1 11 9 4 1 7 11 2	2 0 8 1 1 1 2 5 1 1	se. n. w. sw. nw. nw. w.	S. W. Marsh. G. D. Kellogg. Southern Pacific Co. E. S. Wangenheim. Cal. Gas & Elec. Co. J. R. McIntosh. U. S. Forest Service. Southern Pacific Co. U. S. Forest Service. Cabot Observatory. H. D. Brodie. W. H. Duncan.
Orland. Orleans. Oroville (near). Palermo. Palm Springs. Pasadena. Paso Robles. Peachland. Penstock Camp.	Glenn. Humboldt Buttedo. Riverside Los Angeles. San Luis Obispo. Sonoma. Tuolumne.	254 520 250 213 584 827 800 190 3,750	29 8 27 20 22 21 24 15 4	63.0 61.6 61.8 60.8 71.4 61.5 58.7	- 3.4 - 4.8 - 1.1 - 3.1 - 3.3 - 1.1 - 0.4	90 92 89 95 94 92 97	16† 18 15† 3 4† 17 17† 18	38 42 38 41 35 58 39 32 34	11† 11 27 22† 31 6† 2	43 39 42 48	0.57 1.75 0.47 0.25	- 0.55 - 1.31 - 1.75 - 0.10 - 0.87 - 0.86	0. 40 0. 65 0. 47 0. 25 0. 05 0. 06 0. 10 0. 31	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 1 2 2	28 21 21 23 12 19 27 25 22	2 7 10 4 16 7 4 4 4 9	3 0 4 3 5 0 2 0	n. s. n. w. w. nw.	U. S. Reclamation Servie F. T. Hale. E. D. Fairchild. Western Pacific Co. Southern Pacific Co. E. D. Sorver. Dr. F. W. Sawyer. E. H. Parnell. Tuolumne Water Power
Placerville	San Francisco Marin	250 490	18	59. 4 56. 8		84 87	16† 16	48 48	201	28 23	0.30 0.20	- 1.03 - 1.90	0. 17 0. 14	0 0		16 15	5 8	10 8	nw. nw.	A. Baring-Gould. John Hyslop. U. S. Weather Bureau. Leslie McAuliff.
Porterville. Quincy Red Bluff. Redding. Reddands. Reedlands. Reedley. Risito (near). Riverside. Rocklin.	Plumas. Tehama. Shasta. San Bernardino. Fresno. San Bernardino. Riverside.	307 552 1,352 347 2,250 851 249	16 34 35 18 11 5 29	1	- 1.6 - 3.7 - 0.4 - 2.4 + 1.0	92 95 91 90 100	17 15 8 15† 15†		21 2 2 28 5 5 2 23	45 42 28 57	0.00	- 0.54 - 1.89 + 0.03 - 1.04	0. 25 0. 57 0. 48 0. 71 0. 00 0. 34 0. 39	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 4 1 0 2 2	26 21 20 21 21 20 20 20	2 6 6 8 10 7 10	3 4 5 2 0 4 1	w. n. n. sw.	U.S. Forest Service. U.S. Weather Bureau. L. F. Bassett. P. W. Moore. Santa Fe Co. Southern Calif. Edison C. J. H. Cox. Southern Pacific Co. Dr. R. Callahan.
Rohnerville	Sacramento	71	8 34 58 3	55. 2 61. 6 59. 2	- 0.6	81 86 96	19 16	37 44 36	10 5	34	0.18	- 0.72	0.18	0	1	24	6	1	80.	U. S. Weather Bureau. S. H. Gerrish. E. E. Hooper.
St. Helena Salinas. San Bernardino San Diego San Francisco. San Jacinto.	Monterey San Bernardino San Diego San Francisco Riverside	1,054 93 207 1,550 95	37 19 40 40 18 26	59.1 64.0 63.0	+ 1.6 + 0.9 0.0 + 2.5 + 3.2	90 97 84	16 17 7 16 15 16	36 36 50 50 40 38	23 15 29 28 5	54 28 29 50	0. 21 0. 50 0. 28 0. 28 0. 28 0. 80	- 0.55 - 0.09 - 0.12 - 1.42 - 0.60 - 0.08	0. 11 0. 43 0. 28 0. 16 0. 28 0. 47	0 0 0 0 0	2 2 3 1	29 18 23 18	0 11 8 9 3 7	1 2 2 0 4 5 1	nw.	Miss E. Ruth Abbott. Dr. A. K. Johnson. U. S. Weather Bureau. Do. E. T. Tanner. U. S. Weather Bureau.
San Leandro San Luis Obispo San Mateo **. San Miguel **. San Miguel Island	Alameda San Luis Obispo San Mateo San Luis Obispo Santa Barbara	48 201 22 616 500	37 24	61.2 62.0 64.5	+ 3.0 + 2.6	95 84 90	16 18 17	41 49 38	23 111 11	43		- 0.92 - 1.25 - 0.65		0	1	15 20 20	3	6 8 2	nw.	Frank Jones. U. S. Weather Bureau. Southern Pacific Co. Do. Capt. W. G. Waters.
Santa Barbara	Santa Barbara Santa Clara Santa Cruz San Luis Obispo Santa Barbara Los Angeles	371 130 90 20 996 220 110	22 27 22 38 22 23 26	62. 5 59. 3 59. 2 62. 4 66. 3 59. 8	- 0.1 + 0.2 - 0.5 + 3.2 + 4.0	93 89 91	16 16 16 17 16 7	45 35 40 42 34 43	13 23	36	0. 28 1. 22 0. 85 0. 00 0. 00 T.	+ 0.12 - 0.92 - 1.87	0.78	0	7 2 0 0	24 25	6 1 4 3 0 4	3 4 6	w. n. w.	Southern Pacific Co. G. W. Russell. Santa Clara College. W. R. Springer. Southern Pacific Co. Edwin Morris. N. D. Ingham. M. L. McDonald, jr.
Santa Rosa Selma **. Seven Oaks	Fresno	311 5,000	25	66. 5	+ 2.5		8	48	31		0.09	- 0.56	0.09							Southern Pacific Co. M. Lewis.
Shasta. Sierra Madre	. Shasta	1,048	15	66.6	+ 2.0 + 2.1	99 91	8 71	37 50		51 35	0.17	- 3.17 - 1.16	0.17		1 2	29 25	1 2	1		Mrs. A. C. Gregory.

TABLE 1.—Climatological data for October, 1911. District No. 11—Continued.

			years.	Tem	peratur	e, in	degre	es Fal	hrenl	neit.	Prec	ipitation	, in in	ches.	lays,		Sky		direc	
Stations.	Counties.	Elevation, feet.	Length of record.	Mean.	Departure from	Highest.	Date.	Lowest.	Date.	Greatest dally range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	8	Number of part-	Number of	ing wind tion.	Observers.
California—Continued. Sierraville Sisson Soledad ** Southeast Farallon	Monterey	188	1 22 37 8	56.0	- 2.9 + 5.3	72 85 77	7 31 16	28 48 49	10 1 1 12	38	0.12	- 2.80 - 0.50	0. 25 0. 00 0. 06	0 0	0 3	21 28 18	6 3 5	4 0 8	n. n. nw.	C. D. Johnson. Southern Pacific Co. Do. U. S. Weather Bureau.
Sonora. Squirrel Inn. Sturling City. Stockton (S. H.). Storey. Storey. Suisun ** Summerdale.	Butte	20	23 1 7 40 11 31 15	58.1 55.6 57.4 59.5 59.5 57.6 53.7	- 2.2 - 3.3 - 5.4 + 4.4	84 77 82 85 90 67 86	16 19 22 8† 7† 17 15	38 35 32 41 38 49 28	41 2 21 11 31 25 2	37	0.77 1.23 1.72 0.03 0.00 0.01 0.20	- 1.74 - 0.59 - 0.22 - 1.13 - 3.43	0.50 1.23 0.82 0.03 0.00 0.01 0.20	0 0 0 0 0 0 0	1 3	20 28 19 25 30 24 22	10 0 4 6 0 3 7	1 3 8 0 1 4 2	sw. n. se. nw. nw. w.	Chas. P. Jones. A. D. Frantz. Butte Co. R. R. Co. State Hospital. Santa Fe Co. Southern Pacific Co. Mrs. J. E. Lowry.
Summit. Susanville	Placer	7,017 4,175 8,000 3,964 220	38 22 5 34 40 9	44. 0 46. 6 38. 2 57. 3 60. 6 57. 6	0.0 - 4.0 + 1.2 - 3.8	68 72 67 72 87 82	18 17 22 18 17 9	24 25 13 41 46 40	2 21 21 30 3 26	37		- 1.92 - 1.40 + 0.12 - 0.88	0.30 0.25 0.50 0.57 0.20 0.22	3.0 0 14.5 0 0	3 1 5 1	26 18 21 25 24	0 12 7 0 1	5 1 3 6 6	8W. 8W. se.	Southern Pacific Co. James Branham. William Bennett. Southern Pacific Co. Do. S. E. Bailey.
Chree Rivers. Cowle Cracy ** Jpland Jpper Lake.	Placer	870 3,704 64 620 1,750	1 25 31 18 14 26	61. 2 54. 0 69. 6 57. 9 63. 8 59. 9	- 1.8 - 6.1 - 0.5 + 1.3	92 85 84 94 93 94	8 15 16† 18 16 16	38 30 50 33 42 33	5† 2† 30 30 28 5†	47 43 53 40 52	0.07	- 1.24 - 0.60 - 0.04 - 0.90 - 0.50	0. 07 0. 59 0. 00 0. 70 0. 20 0. 44	0 0 0	1 4 0 3	22 19 23 20 28 23	9 4 2 6 3 4	8 6 5 0 4	sw. w. nw. nw. w.	E. D. Barton, Southern Pacific Co. Do. Dr. Geo. McCowen. A. P. Harwood. C. M. Hammond.
Vacaville Valley Springs ** Varner Springs Vasseo	Solano Calaveras Tulare San Diego Kern.	175 673 334 3,165 336	23 22 23 3 11	61.8 64.7 59.6 61.0	- 2.6 + 1.5 - 2.4	93 90 91 92	16† 15 8 17	36 47 35 36	2 5† 4† 31	51 50 49	0.48 0.37 0.00 0.25 0.00	- 0.96 - 1.06 - 0.60	0. 48 0. 20 0. 00 0. 25 0. 00	0 0 0 0	1 3 0 1 0	20 24 29 29	11 6 2 2	0 1 0 0	n. n.	G. O. Coburn. Southern Pacific Co. Santa Fe Co. Mrs. F. S. Sandford. Santa Fe Co.
Watson ville	Santa Cruz Humboldt Stanislaus	90 84 136	15 1 22 24 32 7	59.8	- 0.9 - 1.7 - 2.7 - 3.8	96 80 87 87 88 96	16 18 16† 18 15 18	30 34 40 40 40 24	23† 31 28 2 2† 31	53 36 38 42 63	0.51	- 0.05 - 0.83 - 1.16 - 0.74	1.53 1.13 0.00 0.21 0.20 0.50	0 0 0 0 0	5	14 25 27 21 16	14 3 0 6	3 4 4 4	w. w.	Spreckels Sugar Co. M. E. Lathrop. Southern Pacific Co. Wm. Lumbard. L. C. Stiles. J. P. Kelly.

*, b, °, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for October, 1911. District No. 11, California.

Stations.	Watersheds.											No.			1	ay o	f mo	nth.												,			
Maria Maria	Watersheds.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon.																													14	u	H		
math Agency	Klamath			.50											.09																		
math Falls	Pitt	••••	••••		••••		••••							• • • • •													****						1:
ng Valley	Int. drainage	.02	.03	. 43						. 11					U.O																		. 0
nna	do	.32			.46					.21												****											i
California.												-									ALL S												
	Sacramento.																											96					- 3
meda	Coastdo	.05			••••				. 25																		.10						. 0
els Camp	Saramento. San Joaquin.	- 45								.08																							
iola	do	2																															٠.
03	Coast		. 30							. 10																	.78						
whear obtings.	Sacramento.	.08	••••		T.	T.	••••			.15										• • • •		****		****			T.	.23		****			
lonsa.	Ocean Coast																											. 25					.1
dad	Desert																																
ersfield	San Joaquin. Desert	••••				****	••••												****		****	****			****			.08	3	****		****	
River	Desert San Joaquin. Sacramento. San Joaquin.				.56					50													****				.50						
Valley (2) Valley Dam	San Joaquin.									.10																		. 15					
otta	San Joaquin.	••••	.08																				****										
Lomond	Coastdo	. 38																									. 67						
28	Sacramento.									. 05																	. 57	1					-
op Creek	Owensdo																												. 20				
eksbur	Coast Sacramento.	. 10		.31					.74	. 24				. 27	. 13														7				
the	Desert																											.04	4 1.10				
der Creek mans Dam	Coast	. 25							T.																		T.					T.	
nscomb	Sacramento.	. 66		T.					.90	.75		1 0		.18	3												04						
sh Creek ney te Valley	do				.59	.04				. 68																	. 07		1				-
X100	Desert.						1		1							1			Inna										40				
stoga	Coast	;;	.05						05																		31			. 75	9	.00	ś
po	do																																-]
aptonville (near)	M't'n Lakes.	T.		::::	.20	. 05			·	.00																		.0					1
ster	Sacramento.	. 12				.31				. 13																. 0							-
o (near)	do	T.							. 45						3												. 10				T		-
a F lat	Coastdo																					1											
emont	Sacramento. Coast				.50																.00	.01					.07		.00		T.	.00	2
verdaleax	do	.22							.12	.1	/																10	T.					-
ate	do	.82	. 26		.01	. 34				.3	2																. 13	- 45	9				
isa	do	T.							. 04																		. 20						
ona	Coast																											.60	7				-
amaca	San Joaquin.	T.	110						1:::	. 10)																						
risviller Creek	Sacramento.				T.					. 00													****				39		18				-
Monte	Coast	.22	2																								. 10						-
air	San Joaquin.			.25						.2																							
cansouba	Coast																												57	7			
binsvnieville	Sacramento.				.37					. 3	5																43	. 2	8				
llevs	San Joaquin.	.03	7.11		T.					113	3																. T.						
nnigan	Sacramento.			3						T.																.2	9						
ham	do	. 25	5						2																		2	5					
rvillet Park	Coast Sacramento.	1.10																									00	3					
son	Klamath San Joaquin.	.10							.71						4																		-
Cajon	Coast	.00	3																									2	5				
nore	San Joaquin. Coast		9	1	Т.																							1	5				
igrant Gap ondido	Sacramento. Coast			. 14	.40	1			30)																	0	1.1	7				-
ека	do	. 0	8	3	5 .01	l			5	8 .2	4			3	8																0	4	
montmington	San Josquin.		. 1.10	ō																									5				
tonebaugh	Coast San Joaquin		6	5						0	9																	6					
som	Sacramento.		1	5							1	0															.TT.	1.0	2				
rdyce Dam rt Bragg	Coast	. 6							9	0		5		1	3																		
rt Rossuts Springs	Sacramento.	.4	1	3 T.					4	T.				. O	0												1.10	0.0	3				
edalba	Coast																										. 1.1	5 .4	5 .1	8			
COLUMN TO THE PARTY OF THE PART	San Joaquin.	.0	1							. 0	0																						

TABLE 2.—Daily precipitation for October, 1911. District No. 11—Continued.

Stations.	Watersheds		1	1			-	,	,			,	,)ay	A IIIC	шен.												-			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
alifornia—Contd.																										-					100	0	
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ta	do	. 02							1.00	.06				. 50		****										. 40							
endoraen Ranch	do	••••					0000															****							90				
ennville	San Joaquin.									. 27							2000		****										. 20				:
enwood	Coast	. 45								. 14																		1.75					
ld Run	Sacramento. Coast		.00		.00	. 10				. 50				****	****				****	****							T.						-
ass Valley	Sacramento.	.06	.11		. 39	.01				. 30						****	****		****	****	****	****	****	****	****		. 55				****		
eenville	do	T.		T.	.37					.04																	T.						
idley	San Joaquin.	14	25	Т.	T.		****	****		.04			****	****													T.	. 54					
inda	Sacramento.		. 00		4.																****			****		****	1.			****	****		:
mford	San Joaquin.	.02																						****									
ad Damaldsburg	Sacramento. Coast	.05	. 20	m.	. 30				40																		. 47	. 30					-
arst	do	. 40		1.			****	0000																		30							
ber	Desert																									. 00			.37			****	
len Mine	Coast	. 40							. 76	. 12										****													
speriatch Hetchy	Desert San Joaquin.												****																				
leomb	Coast				****							1	****		****							****											
llister	do									.03	. 08												****					.11					
ornbrook	Klamath	01		. 18									****																				-
dlville	San Joaquin. Coast	.01					****			.11						****					-						1						1
yllwild	do	. 22							. 00	.00	****	1					****												1				1
dependence	Owens																											PES					
dio	Desert Sacramento.	91			90					02			****																				
ie	San Joaquin.						.06		1	.91																****	. 24						1
ksonville	do		. 30								. 11																				****		1
mestown	do	. 15	. 50			***				. 15																							
on	do Coast	T		. 20				****						****									****										-
lian	do																								****	****	. 45	. 60					1
nnedy Mine	San Joaquin.																																
nnett	Sacramento.									. 52							. 40																-
ntfieldrnville	San Joaquin.	****							. 10				****							****													-
ag City	Coast												****											****			. 05					0 - 0 5	1
lights Landing	Sacramento.									. 04																		T.				. 02	2
Grangeke Eleanor	San Joaquin.	. 36							.06																								-
keside	Coast						****						****							****	****	****	****		****						****		1
Porte	Sacramento.				2.50					. 53														****	1111		. 08	T.					1
throp	San Joaquin.	. 02																															
urelytonville	Coastdo									. 15																		1.80					-
Grand	San Joaquin.								****		****		****	****		****	****	****	****	****			****	****							****		1
mon Cove	do																	****															1
ek Observatory	Coast	. 08				1			.08																		. 30						-
di	San Joaquin,	. 02		****	T		****		T.	.19		****		****	****	****							****				. 22						-
ne Pine	Owens																											. 63					1
ng Camp	San Joaquin.																																
ng Valley	M't'n Lakes. Coast					.02			:-												****												-
s Alamos	do												****									****			****								1
s Angeles	do																										T.	.16					1
s Banos	San Joaquin.																																
s Molinos	Coast Sacramento.	. 20	T.	15					10	. 05								****								. 35	. 26					. 04	4
w Observatory	Coast			. 10			****		.10																	. 00		.20			T.		1
Cloud	Sacramento.	.13			. 16				. 50	.52				. 07													. 15						
acdoeldeline	Klamath	T.								.50										****													-
galia	M't'n Lakes. Sacramento.			- 4 * *					1.00	. 38						• • • • •										20							1
mmoth Tank	Desert																																1
riposa	San Joaquin. Sacramento.																																
rysville	Desert								T.																		. 26	T.					-1
elones	Sacramento.	.60												2000															1		1111		1
enlo Park	Coast			. 10																													
erced Falls	San Joaquin.	10																															-
sa Grande	Coast						****			. 04																		.47					1
Il Creek (1)	San Joaquin.	. 11	. 31	.06						. 23					1												. 09			1			
ll Creek (2)	Coast																										. 15	.40					
lls College	San Joaquin.							m.																									-
ton (near)	do	.18			T.			1.	T.																			1	1				1
desto	do																																1
ave	Desert.																																
kolumne Hill no Ranch	San Joaquin. Coast	.71			****			****																									-
nroeville	San Joaquin.			1	-																							.11					1
ntague	Klamath	. 22			. 13				.40	. 05				.06	. 08								****										1
nterev	Coast		. 18							.13																							
nterio ntgomery Creek	San Joaquin. Sacramento.									. 02																							-1
unt Tamalpais.	Coast	. 09							ne ne	19																	T.						1
unt St. Helena.	do	. 25								- 65							****						****	****			1.						1
pa City	do	. 10								. 32																							
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	do																										1 . 40			3		***	1

TABLE 2.—Daily precipitation for October, 1911. District No. 11—Continued.

	Waterbada							14	100	76		0.			р	ву о	f mor	nto.														
Stations.	Watersheds.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26 .	27	28	29	30	31
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imshew	Sacramento.	. 38								. 96																	. 30					
orth Bloomfield	San Joaquin.	.50 T.		••••	T.				••••	.30				****					****	****		****							****			
orth Forkorth Lakeport	Coast	.50							. 14	. 15																	.03					
akdale	San Joaquin.		.27																								.19	20				****
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akville	do	.04								. 25																						
ceanside	do																					01			****		. 32			****		****
jai Valley rland	Sacramento.	40					****	****	.07																	. 08	.05					
rleans	Klamath			. 53					. 65	.00				.51													47			****		
roville	Sacramento.														••••							****	****		****	****	.47		****	****		****
zeanaalermo											1															. 25						
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ilot Creek	. Sacramento.	.00			. 39				. 64																		. 32					
inchot	Coast																								****	.27	. 08					
ine Crest	Sacramento.	1:::	1		1:::		****					1																				
oint Lobos	Coast	.17							.01	.12							. 02							01	.01		T.	. 20	.05			
oint Loma	do	.0							.12	.0		.0	.01	.01		. 02	. 02					1	. 01	.01	.01		T.		.00			
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TABLE 2.—Daily precipitation for October, 1911. District No. 11—Continued.

															1	Day (of mo	onth.														
Stations.	Watersheds.		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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per Mattole	Sacramento	. 12		. 90				40							. 39						****		****		****	****						. 00
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alia	do			1																												
rner Springs	Coast																											. 25	****			
isco	San Joaquin																															
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est Branch	Klamath Sacramento	07	.10	- 41	. 31				1.13																****		. 56	F85. 1	****			****
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est Point	do	1	.54												1											T.	.08					
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neatland	Sacramento				. 21					. 03							****										. 21	.03				
illows	do	05																									. 20					

^{*} Precipitation included in that of the next measurement, ‡ Separate dates of falls not recorded.

 $[\]prod$ Precipitation for the 24 hours ending on the morning when it is measured. T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for October, 1911. District No. 11, California.

		a baselous												Ca	liforni	a.												
Date.	L	ore.	Altu	ras.§	Ban	stow.	Brans	scomb.	Bra	wly.	Col	usa.	Eur	eks.	Fre	sno.		pend-	Los A		Mour		Nev Cit		Por		Red l	Bluff.
	M	ax. Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
4			60 55 60 53 65	43 28 19 35 25	80 82 82 83 83	57 57 55 50 50	48 59 60 70 76	42 32 34 33 37	92 83 89 85 94	64 61 53 57 59	67 68 72 67 74	40 39 44 52 41	56 57 61 58 58	47 45 44 46 44	70 70 78 72 73	49 44 46 45 44	74 64 67 74 70	46 39 35 40 40	71 74 84 79 72	57 51 58 58 54	53 62 61 52 66	41 41 47 43 48	61 66 75 56 76	40 28 31 42 30	******		60 71 69 67 76	46 42 43 52 47
7 8 9			78 79 72 61 56	25 30 35 38 26	90 90 95 77 85	64 64 51 55 54	78 74 75 60 67	38 40 41 36 31	94 95 87	50 65 53	75 78 75 74 71	42 43 40 48 40	60 60 60 58 56	46 49 48 46 41	83 90 90 70 72	49 50 57 51 44	73 77 78 68 65	38 38 52 38 36	88 92 80 69 84	55 64 58 55 55	68 77 58 54 62	58 57 44 43 44	82 89 78 64 72	34 38 38 36 28			78 83 73 63 70	48 48 52 49 44
12 13 14			68 76 71 63 73	21 25 30 41 21	88 86 91 90 93	54 44 53 55 58	69 74 65 74 81	36 39 38 39 40	89 92 96 97 97	50 49 53 53 53	73 75 77 76 87	43 40 48 47 65	57 61 64 58 71	44 46 50 48 47	79 87 87 77 84	44 48 48 52 52	68 72 74 81 79	34 34 36 39 49	77 79 78 81 82	55 55 53 53 57	70 68 62 66 72	53 56 49 48 62	78 83 75 77 90	30 33 36 36 36 37			76 77 76 77 90	48 45 45 50 66
17 18 19			77 76 66 69 67	25 25 23 23 23 20	90 91 96 89 86	46 45 63 45 51	88 84 79 76 71	44 41 41 40 40	92 95 93 88 83	59 48 50 50	84 82 85 81 82	48 46 48 63 45	67 56 71 73 70	50 49 45 47 50	91 91 87 86 84	53 56 54 51 52	78 78 78 73 74	40 39 46 45 38	95 90 75 72 69	60 60 55 57 56	82 81 78 72 67	68 69 65 62 63	90 90 93 77 83	39 39 39 42 38			85 84 84 82 84	57 53 92 62 54
22 23 24			74 72 71 70 58	18 19 21 30 24	84 85 88 82 83	57 48 41 42 46	70 72 73 74 75	39 39 39 38 39	85 87 83 82	41 41 50 48	74 71 71 65 71	44 43 42 47 40	55 -60 58 59 56	50 52 52 49 50	83 80 79 77 81	48 46 46 50 47	68 70 70 72 74	40 34 34 39 37	79 81 81 78 76	53 54 54 56 52	65 59 64 64 71	49 43 50 56 46	80 79 78 78 78 71	35 36 35 38 35			80 74 75 77 72	48 48 46 52 46
26 27 28 29 30			62 69 68 72 61 64	43 23 18 22 23 24	81 71 78 81 81 79	52 53 56 48 46 44	75 70 69 70 68 67	37 38 35 35 34 33	85 80 77 79 81 83	50 63 55 49	73 65 65 66 65 70	37 40 40 42 47 42	63 60 48 53 59 54	45 47 46 45 44 42	69 71 73 73 70 69	51 50 49 45 44 41	66 62 70 69 66 66	39 39 44 36 35 35	64 66 71 70 68 67	57 55 51 56 56 56	50 60 62 58 52 59	43 45 48 41 41 41	54 70 72 71 69 68	45 32 32 32 36 32			64 75 69 60 65 73	52 46 47 46 47 47
Mns			67.3	26.5	85.2	51.7	71.3	37.7	DE LO	52.7		44.7	59.9	46. 9	78.9	48.6	71.5	39.2	77.2	55.5	64.4		75.6	35.5		1	74.8	

													Calif	ornia.												
Date.	Redl	ands.		era- nto.	San	Diego.		an cisco.	San	Jose.		Luis ispo.		nta bara.		nta osa.	Sis	son.	Stoc	kton.	Sun	nmit.	Susar	nville.	Yose	mite.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
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8 7 8 9	73	48 52 56 49 44	76 83 69 65 71	50 51 54 51 46	74 84 70 68 70	54 60 61 56 52	77 76 63 64 66	52 51 52 54 52	80 90 75 65 71	40 44 46 45 39	86 91 71 65 74	49 48 45 49 54	87 92 73 80 80	47 50 57 49 47			70 72 70 50 49	36 45 32 33 28	76 82 85 70 68	44 46 48 50 42	62 62 57 42 48	35 38 42 25 25	63 68 69 54 56	31 33 35 38 38	82 85 85 65 75	28 30 30 29 29
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6 7 8 9	93 88	54 55 51 44 51	86 84 85 81 82	55 55 53 57 48	83 70 69 66 66	55 57 53 59 60	87 83 86 83 61	62 60 57 54 51	90 86 89 85 72	42 50 45 44 45	95 88 77 73 68	50 52 47 48 54	94 83 68 69 65	48 51 55 56 58			57 57 62 62 62 62	38 38 32 32 31	85 85 86 80 77	50 50 50 50 47	65 62 68 58 60	35 38 31 34 36	66 72 68 64 61	30 30 29 27 28	86 90 96 83 82	30 30 33 33 33
1 2 3 4	85 83 84	45 47 45 51 48	76 72 71 77 74	48 47 44 52 48	70 73 75 72 69	56 52 54 51 56	62 63 67 69 69	53 53 53 54 53	67 65 70 75 83	46 45 41 49 44	70 71 76 76 76 73	52 47 41 48 77	68 74 72 73 70	56 45 49 48 48			70 68 69 65 60	33 31 36 31 41	68 68 67 66 67	46 45 45 52 46	64 63 58 55 50	32 36 43 38 32	58 64 67 67 67	25 25 29 29 32	79 80 78 72 78	31 30 29 25 29
6	61 68 69 66	44 53 42 50 45 43	63 72 71 67 66 66	50 49 47 45 47 46	67 64 67 68 67 68	55 56 52 55 56 56 59	57 64 58 56 61 65	53 · 52 50 50 52 54	57 68 63 61 64 66	47 44 47 50 46 46	60 64 65 60 63 68	51 49 46 50 48 46	62 67 70 67 67 67	58 54 48 52 52 48			58 62 64 65 56 57	32 33 31 33 39 33	66 64 62 66 64 70	53 49 44 41 44 43	52 56 54 54 51 44	28 32 34 34 38 30	60 60 60 62 65 60	32 30 31 80 28 32	70 64 60 71 70 70	34 29 25 26 28 24
Ins	80. 9	48. 4	74.1	49. 2	70.6	55. 4	68. 5	53. 3	73. 6	44. 4	73. 9	48. 6	74.5	50. 5			60. 2	34. 0	72, 3	46.7	54.9	33.1	62. 2	30, 9	77. 2	29. 1

n, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

Bata are from standard instruments not supplied by the U. S. Weather Bureau.

Bata are from standard instruments not supplied by the U. S. Weather Bureau.

Bata are from standard instruments not supplied by the U. S. Weather Bureau.

Bata are from standard instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

17166-11-9

CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

October as a rule was dry and cool. On account of the coolness more than the usual amount of snow fell in the mountains. In the usually humid portions of Oregon and Washington the last half of the month was very dry, with an abundance of sunshine. The most severe storm occurred on the 8th, at which time the 4-masted schooner William Nottingham, bound from Astoria, Oreg., to Callao, Peru, with over 1,000,000 feet of lumber on board, became waterlogged off the Oregon coast. She was dismasted by high winds and heavy seas on the following day and was in great peril when she was picked up by a passing steamer and towed into Astoria on October 15, without the loss of any lives. In southwestern Montana a heavy snowstorm on the 10th and 11th interfered with railway traffic, and with telegraph and telephone service. At Butte, Mont., there was a fall of more than 21 feet of snow and the street-car service in that city was seriously interrupted for a day or two. The low stages of the rivers made it impossible during the entire month for steamboats to make regular trips on the Snake and Upper Willamette Rivers. The soil was too dry for plowing and this work dragged along slowly. Frosts did no damage as the staple crops had been harvested before they occurred, and on the whole the month was considered a favorable one for most of the important industries in this district.

TEMPERATURE.

The month, taken as a whole, was cooler than usual in this district, although by no means the coolest October on record. Mean temperatures were generally below normal, except in western Washington and extreme northwestern Oregon, where at a majority of stations the mean temperatures were above normal. The greatest departures below normal temperatures were in Idaho, southwestern Montana, northwestern Wyoming, and at a few stations in central and southwestern Oregon, where deficiencies of 3° to 5° occurred. The greatest departure reported was -6.4° at Anaconda, Deer Lodge County, Mont. The warmest weather occurred quite uniformly from the 7th to the 9th, and although there were several cool periods, the last half of the month averaged the coldest, the minimum temperatures were generally recorded from the 26th to the 29th, inclusive. During the last half of the month, also, killing frosts were reported from the majority of stations east of the Cascade Mountains, and freezing temperatures occurred at several stations west of the Cascades.

The mean temperature for the month, as determined from the records of 251 stations, was 48°, which is 1.4° below the district normal for October. The mean temperatures ranged between 55.2° at Mottinger, Wash., and 34.8° at Ovando, Mont. The highest temperature recorded was 99° at Mottinger, Wash., on the 7th, and the lowest was 4°, at Fortine, Mont. The greatest daily range was 60°, at Glenns Ferry, Idaho, on the 8th, and at Riverside, Oreg., on the 15th.

PRECIPITATION.

There was less than the usual amount of precipitation for October, except in southeastern Oregon, southern Idaho, and southwestern Montana, where it was above normal. The greatest monthly amounts occurred west of the Cascade Mountains in Oregon and Washington, in the Blue Mountains in northeastern Oregon, in southwestern Montana, and in central and southeastern Idaho. The most of the precipitation occurred from the 1st to 3d, 8th to 14th, and 23d to 25th; very little precipitation occurred during the last half of the month. During the second storm period, principally from the 9th to 11th, considerable snow fell on the mountains in the eastern part of the district, and some of it remained on the ground at the close of the month.

The average precipitation, as determined from the records of 354 stations, was 1.34 inches, which shows an average deficiency of 1.11 inches. The greatest monthly amount recorded was 5.55 inches, at Pompeii, on the summit of the Cascade Mountains in northern Oregon, and the least amount was a trace at Plains, Mont., and Odessa, and White Salmon, Wash. The greatest 24-hour precipitation was 2.56 inches, at Headworks, Oreg., on the 1st. The greatest monthly amount of snowfall was 32.5 inches, at Butte, Mont.

THE RIVERS.

The Willamette and Snake Rivers averaged the normal stage during October, but the Columbia was nearly a foot below normal, records from eight stations being considered. In western Oregon all the streams were influenced by the rains which fell during the first four days of the month, and in consequence the maximum stages occurred generally on the 5th, or in some cases a few days later. The Columbia, however, showed an uninterrupted fall from the 1st of the month to the 31st. The Snake River was at its lowest stage on the 1st of October and reached a maximum during the third week in the month. The upper Willamette and Snake Rivers were higher this month than in the preceding month, but with these exceptions all streams were lower than in September.

streams were lower than in September.

The mean stage of water at The Dalles on the Columbia River was 2.7 feet, which is 2.1 feet below the normal. At Cascade Locks the mean stage was 1.8 feet, or 1.4 feet below the normal. At The Dalles the stage ranged from a maximum of 4.1 feet on the 2d to 1.6 feet on the 30th and 31st. At Cascade Locks the water fell from a maximum stage of 2.9 feet on the 1st to 0.8 foot on the 31st.

The highest water at Oregon City on the Willamette River was 4.9 feet above the lowest lock sill on the 6th, and the lowest stage was 2.6 feet on the 29th and 30th. The maximum stage at Portland was 4.7 feet on the 9th and the lowest 0.7 foot on the 31st.

MISCELLANEOUS.

Freezing temperatures occurred at most of the stations in the district and a large number of places experienced killing frosts in consequence of these and lower temperatures. Not many thunderstorms were observed outside of Idaho, and in that State they were general only on the 1st, being reported from 11 stations. Observers in Oregon exhibited great uniformity in reporting high winds on the 8th day of the month, and instruments at regular Weather Bureau stations showed the following velocities on that date: North Head, Wash., 74 miles from the southeast; Baker, Oreg., 26 miles from the southeast; Walla Walla, Wash., 29 miles from the southeast; and Portland, Oreg., 23 miles from the south. Other high wind velocities reported from Weather Bureau stations were as follows: Tatoosh Island, Wash., 49 miles from the southwest, on the 13th; Seattle, Wash., 32 miles from the south, on the 9th; Lewiston, Idaho, 36 miles from the west, on the 2d; and Pocatella, Idaho, 36 miles from the southwest, on the 9th. The prevailing direction of the wind was from the west. There was a large proportion of clear days and more than the average amount of sunshine.

MISCELLANEOUS PHENOMENA.

Cooperative Observer Dr. J. Campbell-Martin, of Dayville, Oreg., reports having seen at 8 a. m. on October 8, 1911, a brilliant meteor, the sky at the time being cloudless, and Mr. Arthur Begg, of John Day, reports having seen, under the same conditions, one at 9 a. m. of the same day. Both state the meteors were brighter than the sun.

Dr. Campbell-Martin says:

This meteor crawled, not shot, across from the eastern to the western horizon, apparently but a short distance above the high ridges, and was headed almost due west. The nucleus was a bright yellow but the semitransparent tail, which was of enormous length, was steel gray and emitted myriads of sters.

Mr. Begg says:

I saw a very bright ball of fire, or rather it looked like a dazzling electric light about the size of a baseball with a tail like a comet about 1 yard long and emitting small sparks. It appeared to be not more than 60 yards away and to travel about 10 or 12 miles an hour. It was traveling in a direction a little north of west and about 30 feet from the earth, and heading toward it.

TABLE 1.—Climatological data for October, 1911. District No. 12, Columbia Valley.

terfoly() on se	A 12 III		years	Tem	peratur	e, in (iegre	es, Fal	ren	heit.	Prec	ipitation	, in in		days,	735	Sky.		direc	the district and
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind of	Observers.
Montana.	W = 5 7 11 14				1						The s				10			111	Juan Juan	The second of the second
naconda Butte Solumbia Falls Somo ** Sast Anaconda Fortine Hamilton Hat Creek Kalispell John John John Vando Philipsburg Plains Pleasant Valley Poison Froctor St. Ignatius	dodo	2,700 2,650	10 17 16 3 6 6 8 8 2 13 12 2 32 2 2 12 8 13 4 4 7 6 6	42, 2	- 0.4 - 5.5 - 2.4 - 0.3 - 1.7	73 69	9 8 8	11 12 8 20 17 4 16 18 10 14 7 11 10 ^d 19 6 24 15°	28 27 27 27 27	36 43 32 34 55 34 35 43 48 38 54 34 35 50 34	T. 0, 30 1, 66 2, 32	+ 1.62 + 2.40 - 1.05 + 1.13 - 0.33 + 1.17 + 1.60 - 0.75	2.30 0.20 0.73 1.80 0.22 1.19 1.00 0.76 0.09 1.47 1.00 1.85 1.70 T. 0.30 0.72	5.0 32.5 0 T. 6.2 T. 0 18.3 T. 0 16.0 2.5 9.0 0 T. 0	7 5 2 2 8 8 7 4 3 3 11 3 1 7 7 5 9 6 9 9 0 1 1 6 7	22 18 19 11 22 6 16 13 16 10 20 16 19 de 26 20	10 12	2° 1	sw. e. w.	C. D. Demond. J. R. Wharton. J. M. Grist. Hiram Platt. C. D. Demond. Mike Petery. Bitter Root Valley Irrig. (M. K. Landreth. U. S. Weather Bureau. U. S. Forest Service. Frank Henault. U. S. Weather Bureau. E. S. Wilton. S. B. Muchmore. G. T. Bramble. M. H. Pierce. A. D. Stillman. F. P. Brown. C. E. Proctor U. S. Reclamation Service R. D. Lee. E. K. Tarbox.
Saltese Stevensville Thompson Falls Willow Glen Stock F'm.	Ravalli	3,600 2,462	7	44.2		72		10		40	0.72		0.30	0	3	24	0	7	w.	J. S. Birge.
Villow Glen Stock F'm.	Sanders Deer Lodge	5,064	1	44.3		10	8	18	291	42	0.48		0.13	0	7	15	5	11	w.	R. H. Bushnell. G. E. Luce.
Wyoming. Afton	UintadoYellowstone Park. Yellowstone Park.	6,200 7,000 5,900 7,000	7 1 11 5	36.1 37.9	- 3.6	70 71 70	8 8	6 10 8	19 29 29	46 46°	2.08 0.51 6.94	- 0.93	0.48 0.36 1.70 0.43	14.0 27.6 13.5	6 2 5	15 21* 22	6 2° 2	10 3* 7	sw. w. nw.	A. V. Call. Mrs. Lucy Brown. C. G. Heiner. U. S. Army. U. S. Reclamation Service U. S. Army.
Nevada.	Elko		6	43,3		72	24†	8	29	58	1.30			T.	4	19	1	11	nw.	Moses Jones.
Utah.				-					-	-				-		-	1	-		
tandrod	Boxelder		6	41.5		68	8†	14	19	38	1.99		1.01	2.7	3	23	3	5	sw.	T. B. Jones.
Idaho.	Cassia	4,650	10	42.8	- 5.0	75	8	15	281	47	3, 13	+ 1.65	1.12		6	21	6	4	w.	G. A. Axline.
lmo	Boise		3								1.15		0.38		5	21	8	2		Wm. D. Cahoon. J. W. King.
merican Falls slackfoot Blackfoot Dam Slackfoot Dam Slackfoot Dam Slackfoot Dam Slackfoot Dam Slackfoot Dam Soulder Mine Suhl Saldwell Samas Sambridge Sedar Creek Dam	Oneida Bingham Bannock Boise Ada Bonner Boise Twin Falls Canyon Fremont Washington Twin Falls	4,503 6,200 4,200 -2,739 1,850 4,800 3,800 2,372 4,815	15 2 3 26 4 2 5 7 3	40.8 42.4 43.2 49.0 48.0d 47.5 40.6			9 8† 18 7 8 4	22 28 21d 18	18 28 29 20 20 21 29 28	41 45	2.58 1.50 1.09 1.98	+ 0.65	1.20 0.67 0.35 1.67 1.39 0.89 0.63 0.40 1.80	2.0 6.5 0,5 0 4.9 0	7 5 6 4	26 19 21 20 19 23 16	0 7 3 8 4 2 10	5 5 7 3 8 6	sw. sw. sw. nw. w. sw.	Geo. Stoll. E. A. Dowd. N. W. Irsfield. F. P. Ingraham. U. S. Weather Bureau. W. H. Heideman. Patrick Moriarty. Hugh Taylor. Wm. J. Boone. Mrs. Edna Faulkner. C. H. Shepherd. Robt. Hoffman.
hesterfield	Bannock	5, 424	16					5	30		1.85	+ 0.90	0.43	T.	6	15	10	6	nw.	Chas. S. West. R. L. Sutcliffe.
Cottonwood Creek Council	Adams Nez Perce	4,000 1,520	3	48.4		73	12	21	26	43	2,02		0.96	0	3	15		7		Frank Hedrick. Dick Ross. R. R. Richmond.
Driggs Emmett Forney Jarden Valley Jarnet Jlenns Ferry Jooding Frand Forks Frand Forks Frandview Frimes Pass Juffey Hailey Hailey Hotspring dato Falls Indian Valley rwin Kollogg Kirkham Kooskia Lakeview Andree	Fremont Canyon Lemhi Boise Elmore do Lincoln Shoshone Owyhee Boise Owyhee Blaine Owyhee Bonneville Adams Bonneville Shoshone Boise Idaho Bonner Adams	2,350 3,600 2,575 2,569 3,570 3,000 5,200 2,381 5,347 2,752 4,742 2,999 6,500 2,305 4,200 1,261 2,250 5,300	5 5 14 4 12 2 2 2 3 8 9 6 17 3 2 2 7 7 2 3 13 17	36. 0 46. 8 39. 7 52. 2 47. 6 46. 2 46. 2 51. 5 43. 5 50. 0 43. 5 44. 0 41. 0	- 2.9 - 3.2 - 3.7 - 1.4 - 2.5	85 78 88 88 81 87 71 86 78 84 80 67 70	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 20 9 23 11 16 10 22 20 20 15 10 17	20 174 27 284 27 28 29 30 21 29 28 29 28 29 28 29 28 29 28	51 51 45 60 46 55 45 37 42 48	1.48 0.95 0.66 1.15 0.55 0.69 1.10 0.60 1.96 0.68 0.95 1.32 1.94 1.17 1.30 3.00 0.66 2.63	- 0.20 - 0.09 + 1.40	0,55 0,67 0,53 0,43 0,55 0,30 0,95 0,26 0,76 1,03 1,14 0,67 1,00 0,67 0,34 1,40 0,42	9,5 0 0 0 0 0 3.0 0 1.0 0 3.0 7. 0 3.0	5 1 5 4 5 5 4 4 4	15 16 14 17 22 23 22 21 27 17 21 21 21 21 21 21 19 17 18 21	6 7 8 6 3 1 1 3 4 0 8 5 5 2 2 0 4 4 1 1 5	10 8 9 8 6 7 6 6 6 6 6 5 8 5 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10	m. sw. w. mw. sw.	W. H. Durrant. C. P. Kar. M. B. Merritt. Mrs. Gertrude M. Ross. A. A. Kenison. I. E. Perkins. John Krall. jr. Henry Kottkey. N. G. Massey. Jos. M. Clarke. Fred Perry. U. S. Forest Service. J. M. Waterhouse. Dr. T. M. Bridges. A. M. Henke. Eva Johnston. W. McM. Huff. Mrs. Josie B. West. U. S. Forest Service. E. D. Faust. Mrs. E. L. Brown.
LewistonLittle Camas	Nez Perce	757 5,000	24	50. 2	- 1.6	88	8	24	29	43	1.19 1.48	- 0.01	0.70 0.55 0.61	3. 5 T.	6	16 12	9 12	6 7	e. w.	U. S. Weather Bureau. Solon McCoy.
ong Gulch	AdamsIdaho	4,500 6,000 5,897 3,950 2,657 3,275 1,250 4,110	3 5 4 7 1 2 2 6	48. 4b		78	8 9 8 8 8 8	8 17 22 26 23 22	27† 23† 21 28 28† 21	41	1.34 0.18		0.66	3.3 T.	5	17 23 17 14	8 4 7 0	6 4 7 17	sw. nw. nw. n.	Mrs. E. A. Hjort. Mrs. Mary Williams. U. S. Forest Service. Chas. A. Hackney. A. W. Garrett. I. S. Carter. Jos. McGhee. J. K. Young.

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

			years	Tem	peratur	e, in o	legre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	or mo	Number of clear days.	Number of part- ly cloudy days.	Number of	775	Observers.
Idaho-Continued.																				Street of the local
oscowountainhome	Elmore	. 3,150	20		- 2.0	80	8	20	27†	43	1.01	- 0.61	0.46	0	3	19	6	6	80,	University of Idaho, Mrs. Ellen Manion.
urtaughez Perce			5 2	43.9h		76 78	8	15 19	29 28	44	1.95		1.00	0	5	22	3	6	w.	J. E. Steinour. P. Mitchell.
akley	Cassia	4,700	18	47.6	- 2.0	79	7	21	194	45 33	1.20	+ 0.36	0.35	0	5 4 7	16	11 13	4	ne.	John Adams. J. D. Agnew.
Hara Bar	Clearwater	. 1,027	8	43.9		68 80 84	7 8	20 18	29 28 29	45	1.72		0.56	0	5 5	14	15	2 9		Geo. Alteneder.
yetteaceful Valley	Canyon	2,159 2,325	20	47.8	- 3.5	84	8	19	29	47	1.04	+ 0.20	0.37	0	9	20	2	9	n.	E. F. Allen. J. W. Newton.
bble	Bannock	. 5, 277	3	40.0 42.7		70 71	7† 10	9	29	46 46	2.96 2.05		1.57 0.72	10.0	7	21 25	5 0	5	SW.	Mrs. Fannie Say. D. P. Clarke.
easant Valley	Ada	. 3,000	4	47.0		84		19	30 20 19	45 37	1.17		0.57	0	5	22	1	8	nw.	C. E. Friedrich.
catellocatello Nursery	Bannock	. 4,483 . 5,396	12	44.8	- 3.2	73 70	9 9	10	19	51		+ 0.76	0.72	0.2	4	18 23 13	8 2	5 6	50. 5W.	U. S. Weather Bureau. P. T. Wrensted.
plarrthill	Bonneville	1,665	20	38.8 42.5	- 2.8	72 66	8	20 10 10 18	20 28†	45 33	0.13	- 1.67	0.09	0	6 2	13 20	15	8	8.	C. M. Lawrence. H. A. French.
le Creek	Boise	3,100	2						30		1.40		0.40	0	5 4	23 23	3 2 5	6 3	s. sw.	P. V. Smith. Idaho Irrigation Co.
chfieldoseberryoseworth	Lincoln		1	45.6		79	8	17	30	43	0.68	*******	0.61	0						Rev. H. F. Barstow.
seworth	Twin Falls		2 5	44.7		77	8	16	30	43	0.79		0.64	0	6	23	15	8	nw.	D. B. Hartwell. Will Parry.
Maries	Kootenai	2,263	15	44.2	- 4.6	78 75	8 9	18	28 27	44 42	1.01 2.62	- 1.19	0.53 1.30	5.8	5 5	17	6 12	16	s. nw.	J. S. Turnbull. B. C. d'Easum.
mon River Dam	Twin Falls		3	45.84		760	8	20	19	42	0.86		0.28	T.	4	24	2	5	nw.	P. W. Farrar.
ndpointeep Hill	Bonner		1 3	42.8		71	7	11	29	44	0.53 1.00		0.37	0	5	14	5	12	S.	J. H. Edgerton. C. M. Gardner.
oshone	Lincoln	3,968	3	45.0		77	8	19	28	42	1.01 0.93		0.68	10.0	5	18 21	11 6	2 4	W. SW.	Zell Truman. A. D. Bradfield.
ver Citydier Creek	Blaine		1	42.0		70	7†	15	19	39	0.75		0.40	T.	4	21	5	5	nw.	J. E. Minear.
irit Lake ringfield	Kootenai		3	45.4		83	8	12 20	29 29	54	0.71 2.26	*******	0.45	0.5	5	22 12	9	8	ne.	M. C. Krause. Mrs. W. A. Edwards.
gar	Fremont		4 2			72	81	13 19	28 29	40 51	2.45 0.82		0.90	2.0	5	21	4	6	sw. nw.	E. A. Wilmot.
pod Mountain	Elmore	4,300	2								2.12		0.98	3.5	5	23 17	2	6		Mrs. Verna Paddock.
in Falls	Twin Falls		14	44.9	- 2.8	77 79	7	14 15 21	29 28 29	50 53 38	1.46	+ 2.55	0.75	7.0	5	20	8 7	6	w. sw.	J. A. Waters. A. M. Slatery.
allace	Shoshone	2,728	4	43.4		78	8	21	29	38	0.90		0.53	0	5		• • • • •	••••	0.	U. S. Weather Bureau. Jos. B. Estabrook.
eiserendell			3	47.8		83	8	18	29	51	1.31		0.50		4	23	5	3	w.	C. L. Dingler.
Washington.																			E. E.	
perdeen	Skagit	. 60	17	49.6	- 0.8	70 67	7	31 32	27 26† 28† 28 28	32 25 37	4. 09 0. 49	- 2.62 - 1.99	1.24 0.16	0	12	12	23 16	3	W.	C. S. Weatherwax. Douglas Allmond.
kerllingham		200	16	52.8	+ 0.4	80 76	7 7	32 30 29 26	281	40	1.20	- 1.42	0.40	0	5 5	16 22	5	10		Robt. M. White. S. B. Mayhew.
lingham, near	do	107		48.3		64	7†	26	28	32	1.08		0.34	0	11	14	10	7		U. S. Bur. of Plant Indus
verly	Whatcom	. 57	14	48.5	+ 0.6	72	7	27	28†	30	1.49	- 1.87	0.32	0	12	9	15	7	ne.	John W. Sheets.
emerton	Kitsap	. 30	1								1.20		0.39	0	7					U. S. Navy Yard.
mping Lake	Okanogan	1,620	1	49.6		80 73	8 7	25 19	28 27	34 42	0.20		0.09	0	3	24 21	2	8	nw.	Mrs. H. F. Bertram. U. S. Reclamation Service
lar River	King	. 535	4					29	20†	41	1.79	- 2.20	0. 67 0. 21	0	6	15 12	3 9	13 10	n.	Geo. Landsburg. I. S. Turner.
ntralia	Spokane	2,351	18			78	7													J. A. Balmer.
Elumarbrook		1,930	12	44.4	- 2.7	75 69	8 8	12 23	29 28†	46 39	0.17 1.18	- 1.71	0.11	0	9	7	15	9	nw. ne.	George Gibbs.
fax	Whitman	2,300	22 11	49.5	- 0.1 - 1.4	90		12 14	29 28	53 51	0.63 0.36	- 1.49 - 0.82	0.33	0	2 4	21	6	4	sw.	I. B. Doolittle. W. L. Sax.
ville	Stevens Okanogan	2,300	11	47.2	0	82 78 77	8	20	29 17	38	0.15	- 0.90	0.15 0.14	0	1 3	21 19	3 10	7 2	nw.	Wm. Baines. U. S. Reclamation Service
wichescent	Yakima Lincoln	2, 250	ii	49.6 45.2	- 1.9	82	8 9	29 15	281	33 42	0. 17 0. 21	- 1.14	0.10	0	3	21	4	6	n.	Mrs. Otto Wollweber.
venportyton	do	2,450	25	50.8	+ 0.7	82 i 88	8	17 i 22	27†	40 42	0.06	- 1.21.	0.05	0	8	20 i 16	2 i 8 6	7	******	J. L. Thayer. W. W. Hendron.
er Park,	Spokane Mason.			44.4		85 76	8 7	10 31	28 29 27	51 34	0.25 2.13		0.19	0 0 0 0 0 0	9	17 13	6	8	8e. 8e.	James Mills. Walter O. Eckert.
roit	Walla Walla	5,000	3 2								1.99		0.98	0	10	12 25	5 3	14	sw.	T. Z. Andrews. Valley Power Co.
denckabush	Chelan	960	1 3								0. 26		0.12	0	5	20		3	nw.	E. G. Newman.
st Soundensburg	San Juan	500	16 23	46.8	- 0.5	80	8	14	28	47	0. 23	- 0.30	0.11	0	3	21	5	5		R. L. Barnes.
hrata	Grant	1, 265	8	52.1		75	4†	25	28	36					10	23	7 12	11	W.	T. J. Cook. R. H. Palmer.
t Simeoe	Claliam	1.427	17	48.81	- 3.7	741		21 (381	4.57 0.30	- 0.43	1.58 0.24	0	3	12=	84	44		Dr. F. H. Monk.
ome	Stevens Snohomish	2,900	2	46.4	.4	72	8	20	28†	31	0.07		0.04	0	8	19	7	5	sw.	J. H. C. Scuriock. C. M. Mackintosh.
d Basin	Yakima.	1,360		50. 5s		76s	8†	254	28	464	0.40		0.40		1	16	7	8	nw.	U. S. Forest Service J. W. Anderson.
d Creekdendale	Klickitat	1,600	. 2	47.7		78	8	21	28	36	0.35	- 0.88	0.35	0	1 6	14	12	5	w.	Klickitat County Abstrac
anite Falls	Snohomish	. 397	8								1.45		0.40	0	6	15	6	10	nw.	C. H. Cleaver,
tton	Adams	1,100	6	49. 2		87	8	14	28	45	0. 21 0. 60		0.11	0	2 2	12	8	11	nw. sw.	Dr. A. V. Marion. Mrs. S. J. Hill.
ntsvillene Mountain	Okanogan	3,015	3 2								0.05		0.03	0	2 2 4	21	5	5	nw.	Mrs. S. J. Hill. Mrs. Manda Shain.
nnewickttle Falls	Benton	. 368	16	51.8 47.5	- 1.8	85 85	9 8	17 18	271	47 52	0.18 0.20	- 0.39	0.10	0	4	13 1	8	61		R. E. Reed. Harry H. Cole.
ona	Benton	430	6										0.66	0	10	9	20		ne,	J. A. Ulsh.
smosCenter	Clarke	250	14		- 3.3	83 72	7	24 22	27†	47	1.72	- 3.17	0.47	0	5	14	10	7	sw.	Joseph Brothers. M. E. Schreck.
	Whitman	1,400	2	47.4		88	8	9	28	46	0. 10 0. 36		0.10	0	7	22 13	3	7 15	e. nw.	U. S. Reclamation Service
ke Clealum	Kittitos	9 171	9																	
ke Clealum ke Kachess ke Kechelus	Kittltasdo	2,235	3 3	41.4		75	9	12	28	48	0.54		0.24	0	8 2 3	18 12 11 14	7 10 18 15	9 2 2	8. W.	Do. Do.

TABLE 1 .- Climatological data for July, 1911. District No. 12-Continued.

			year	Tem	perature	, in	degre	es Fah	renh	eit.	Pre	eipitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy da 0.01 inch or more	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Washington-Contd.																				
Laurier	Ferry		7	45.4		82 79	8	16 28	28 5†	47 40	0.25 1.29		0.07	0	5 8	18 16	6	7 10	w.	Mrs. J. S. Myers.
Lone Tree	Chehalis	14				64	20†				2.32	*******	0.66	0	11	8	5 12	11	W. SW.	Augustine Smith. U. S. Engineer Corps.
Longtnires Springs	Okanogan	3,125	2 2 2								0.10		0.10	0	1	16	10	5	se.	P. H. Leese.
deConihe	Chelan	1,100 1,072	4	50. 3		84	8	19	28	37	0.31		0.19	0	3	22	2	7	n.	Paul M. McConihe.
dcCumbers Ranch	Yakima	2,182	2		*****						0.90		0.30	0	5	22 15 27°	14	2		Miss Mary McCumber.
Mottinger	Benton	307	11	55.2	- 1.2	99	7	26 35	28	55	0.39	- 0.30	0.18	0	5	23	0	3ª 8	sw. e.	Miss Mary McCumber. C. C. Ward. G. H. Mottinger.
fount Pleasant	Yakima	1,000	19	48.2 48.0	- 2.1	67 82	6 8	35 17	17† 27†	23 46	1.57 0.07	- 0.45	1.39	0	3 2 3	16 20	5 7	10		Wm. M. Darr. H. B. Scudder.
Newport	Stevens	2,400 211	1 9	44.0 53.6	+ 0.7	78 71	8 8 21	11 45	28†	45 20	0. 49 2. 32	- 1.59	0.30	0	3 13	17	8	6		Chas. M. Talmadge.
Northport	Stevens	1,350	12	45.5		75	8	20	29 28 29 27 27† 28† 26 28	37	0.40	- 1.41	0.18	0	6	26	0	5	se.	U. S. Weather Bureau. W. F. Case.
North Yakima			2 8	49. 2 50. 6		75 72	8 6t	20 23 23 12 38° 29 14	29 27	36 37 45	0.12			0	3 2 0	19	8	4	nw.	Albert Bender. Miss Ruth Shepard.
OdessaOlga		1,540 50	8 21	46. 4	+ 2.4	86 60n	8 20	12 38n	271	45 17=	T.			0	0	12 9n	17 5n	2 3n	sw.	Wm. U. Neeley. Cecil Willis.
Olympia Omak	. Thurston	200	33		+ 2.4 + 0.7	76 84	7	29	26	40		- 3.07	0.35	0	7 2	12	6	13	SW.	M. O'Connor.
Droville	do	922	2			04			25	47	0.06		0.04	0		21	3	7	n.	St. John Umbrite.
Parker	. Garfield	5,000	2								1.28		0.68	0	6	18	8	5	sw.	Samuel Gruell, sr.
Pomeroy	do	1.500	19 16	50. 7h	- 2.9 - 1.0	88h 62	8	19h 30	28 29	36 24	0.50	- 0.82 - 2.36 - 1.52 - 0.49	0.25	0 0	6 3 7 4 4	9h	11b	3h	W.	Peter McClung. U. S. Weather Bureau.
Port Townsend	. Jefferson	80	21	50.7	+ 0.2	66	8 7 7 8 7	37	29	24	0.12	- 1.52	0. 05		4	14	19 5	12	s. nw.	F. Plummer.
Pullman	. Chehalis		19	47. 2ª 50. 8	- 2.4	80 67	8 7	21° 32 31	27+	33	0.93	- 0.49	0.45	0	17	19 11	8	12	sw.	Henry Holtz. C. A. Bullard.
Quiniault Republic	Ferry	300 2,628	11	53.4	- 1.1	79	20 8	31 12	27† 28	44	4.84 0.17		1.85	0	12	13	11 5	7 8	W. W.	A. V. Higley.
Rex Creek	Chelan	1.135	4	12.0					20	30						10			w.	Geo. B. Stocking.
Ritzville Rock Lake	Whitman	1,910	12 5	46.6		83	8	13	29	41	0.02		0.01	0	2 2 5	21	6	4	8W.	Agt. Northern Pacific Ry. P. M. Ramsey.
Robertsville			19	44.5 47.2		73 82	8	20 20	28	35 34	1.28 0.29		0.50	0	5 3	15 20	14	7	sw.	R. R. Conger. Hans Munn.
Russells Ranch	Yakima	2,870	20								0.53		0.24	0	4	21	8	2	w.	Miss Adella Russell.
Sedro-Woolley	Skagit	38	14	49.4	+ 1.7	74 76	7	36 28 25	27 29 25	28 33	1.00	- 3.21	0.39	0	10	13	10 10	16	n,	U. S. Weather Bureau. Mrs. H. L. Devins.
Skagit Power Dam	Whatcom		1	52.0		85	8	25	25	38	0.59		0.42	0	4	19	5	7	ne.	C. E. Comstock.
Snohomish Snoqualmie Falls	Snohomish	100	17 12	52.7	+ 1.3	72 74	3	26	21	33 33	0.85	- 2.79	0.60	0	3	10	15	6	nw.	A. M. Richardson.
Snyders Ranch	Okanogan	2,200	2	44.2	- 1.1	72	7 7	26 29 12 33 19	27†	44	0.10			0	1	16 20	4	8 7 7	n.	O. N. Wiswald. Geo. M. Snyder.
South Bend	Spokane	1,943	16 30	52.9 47.9	- 1.4 + 0.6	72 84	21 8	19	21 29 27† 29 29 18	34	3. 29 0. 39		1.08	0	12	12 10	12 13	8	w. sw.	Mrs. W. E. Buckingham. U. S. Weather Bureau.
State University	King Okanogan	170 2,670	2 2	51.5				38n	18		1.04		0.48	0	3 7 3	14 25	3 5	14	s. nw.	State University. Chas. W. Gunn.
Sumner	Pierce	77	3	49.6	1.0	67		26	21†	37n	1.03		0. 25	0	11	16	3	12	n.	H. E. Thompson.
l'acoma	Pierce	213	16 25	51.2	- 1.0 + 0.6 + 1.8	80 73	7	33	27	41 28	0.41 0.96	- 0.12 - 2.44 - 5.22	0.30	0	9	14 5	15	18	n.	U. S. Reclamation Service. U. S. Weather Bureau.
latoosh Island	Yakima	2,000	26	51.7 44.8	+ 1.8	62 70	20 16	20 33 44 20	27† 27 29 28	14 35	2.78 0.45	- 5.22	0.85	0		11	8	17	ne. w.	Do. Clarence Clements.
Fonasket	Okanogan	945	4	50.2		83	8	22 14	28†	41 53	0.10		0.10	0	1	18 21	3 6	7	n. sw.	E. H. Twight.
Touchet Ridge	Columbia	2,500	2								2.55		1.25	0	4	18 19	4	8	sw.	D. W. Dorrance. R. H. King.
Frinidad Vancouver	Clarke	100		54.0 53.6	+ 0.4	79	7	27 29	28 27† 27†	32	0.14	- 1.60	0.10	0	7	26 13	7	111	nw.	J. C. Wheeler. A. A. Quarnberg.
Vashon Island Wahluke	King	40 410	22	50. 4 52. 8	- 0.3	66 81	8	37 23	271	24 37	1.13 0.34	- 1.72	0.35	0	10	14 21	1 6	16	n.	Gertrude McClintock.
Wallace. Walla Walla	Okanogan	4,000	2	53.2					28		0. 29	0.75	0. 25	0	2	18	9 7	4 4 7	8.	F. C. Koppen. Geo. A. Wallace. U. S. Weather Bureau, F. M. Grout.
Washougal	Skamania	650	11	52.7	- 1.6	86 70	8 7 8	32 36	5	31 24	2.61	- 1.71	0.51	0	9	19	4	8	8. W.	F. M. Grout.
Waterville. Wenatchee, near	Chelan	2,624 1,169	21 12	46.0	+ 0.1	78	8	17*	28†	45	0.37	- 0.34		0	2	24	30	3*		O. R. Hopewell.
White Salmon	Lincoln	325 2, 203	12	51.8 45.4		73 85	7 8	29 13	28 27	31 47	T. 0.03	- 1.22	T. 0.03	0		15 18	6 3	10 10	W. 8.	C. W. J. Reckers. R. J. Reeves.
Wind River Winthrop.	. Skamania	1.300		48.0		74	8 7 8 7	25 15	27 27 28 31	37	2.98		0.85	. 0	10	16	3 5	10	W.	U. S. Forest Service.
Yale	. Cowlitz	375	4	46. 2 53. 0		80	7	34	31	34	0.10 2.34			0	13	184	4 6	13		J. A. Williams. C. G. Ware.
Sillah	Yakima	800 715	9	49. 4 52. 6		79	8	20 31	28	44	0. 24 1. 83			0		23 15	10	6	w. n.	C. G. Ware. M. W. Zindel.
Oregon.		1		-		-	1	0.		-	1,00		1.00			-	10	"		M. W. Dinder
Albany	Linn	212	30	51.4	- 1.0	72	20	28	27	38	1.23	- 1.93	0.41	0	9	9	5	17	8.	F. M. French.
Ashland	. Jackson	1.963	28	53.1	- 1.0 - 0.8 + 1.6	80	8	33	27	38 37	0.66	- 0.78	0.29	0	5	10	15	6	nw.	G. G. Eubanks.
Baker	. Baker	3,466	21	44.8	- 0.8 - 1.2	76 74	8	22	28	20 36	3.06	+ 0.54	0.84	T.	6	16 19	7	12 5	W. 8.	Irving Club. U. S. Weather Bureau.
Bay City Beech Creek	. Grant	4.500	17	41.6		. 68	8	28 33 40 22 30 18 16 28 27 29 19 32 30	28† 28 27 19 27 28 27 28 27 28 29 18† 27	38 32 50 28 33d	3.66 1.38		1.00	2.0		11	5 2	15 12	nw.	John O. Bozorth. G. G. Carson.
BendBlack Butte	. Crook	3,629	29			80	7	16	27	50	0.80		0.60	0	3	26 23 18	3	2	SW.	Bend Bulletin.
Blalock	. Gilliam	237	13	54.0	- 5.9 - 3.2	82	d 9	270	27	330	0.57	0.00	0.31	0	3	18	1 44	64	e.	Wm. Harris. Geo. W. Long.
Brogan	. Harney	4.157	20	50.7 43.2		82	8 7 7 7 7 7	29 19	28	39 43 26 35 53	0.51		0.23	0	3	24 24	3	4	е.	A. B. Cox. J. C. Welcome, jr.
Cascade Locks	Hood Kiver	. 100	21	52.8 52.8	- 1.4	72	7	32	29	26	1.49	- 5.01	0.66	0	8	18	3 2 2	11 13	W.	Val. W. Tomkins. Alf. Drill.
liff	. Lake	4,300	4	41.4		77	7	6	27	53	0. 51		0.82	0		16		6	se. n.	John C. Green.
Condon	. Benton	266		51.2		75		27	29	35	1.33	- 1.61	0.39	0	10	14	8	9	n.	C. H. Williams. Oregon Agricultural Colleg
Prescent	. Klamath	4,400		36.8		74		8	27	54	1.01		0.58	0	7	14 22 16	1 9	8	n. nw.	A. M. Caisse. Dr. J. Cambell-Martin.
Deadwood	Lane	350	1	53.0	+ 0.8	74 83 73 76	7 8 16 7 7 8	27 8 17 31 34 26	29 27 28 27 28 27 28	35 54 48 37 30 45 42				0	12	15 10 12	5 11	11	nw.	Jos. Slemmons.
loro willo					1 - II Q	1 76	7	24	1 130		1 90	03 0	0.30		1 70	10	111	10	nw.	Jos. Hackenberg.

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

			years	Tem	peratur	e, in o	degre	es Fab	renh	eit.	Pre	eipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of elear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind of	Observers,
Oregon—Continued.		- 17						- 47									-			
Ella		830 449	7	49.3.	- 2.7	78	16	19 30 32 25 25	27 27	38	0.51	- 0.23	0.20	0	5	21	5	5	sw.	arl F. Troedson.
Eugene Fairview	Coos	142	21 15	51.0 48.3	- 5.9	75 80	7	30	91	38 42	1.00	- 1.84 - 3.11	0.51	0	6	8 25	11	12 5	w. nw.	F. L. Barker. Wm. Bettys.
Falls City Forest Grove	Polk	355	14	50.5	- 0.2	75	7	25	29	39		- 3.10	0.87	0	7	17	10	4	n.	Chas. F. Vick.
Gardiner	Washington Douglas	220 72	22 21	51.3	-0.5 -0.1	73 72	16 15†	40	29 13	39 27		- 1.85 - 2.37	0.50	0	7 9	11	10	10 11	sw.	Pacific University. J. S. Gray.
Glendale	do	1,441	7																	B. J. Simpson.
Glenora	Tillamook	575	20	50.6	- 0.1	70	8†	26	27	33	4.74	- 4.80	1.50	0	8	19	0	12	nw.	Mrs. Jennie A. Reeher.
Gold Beach	Grant	4,680	6			****					*****									L. N. Ford.
Frants Pass	Josephine	956	23 10	52.7	- 1.2	85	7	28	21†	51	0.61	- 1.52	0.32	0	5	19	6	6	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	10	40 0		779				94	4 70	* 45	9 50							Agent, OW. R. & N. Co
Headworks Heppner	Clackamas Morrow	719 1,950	21	48.0	- 2.1	77 85	8	31	27 27†	37	4.73 0.85	- 1.45 - 0.25	2.56 0.37	0	9	15	8	8	nw.	Portland Waterworks. Frank Gilliam.
Hermiston	Umatilla	451	4	50.6		92	8	21 16 22 24 22 32 32 27	28 27 27† 25	52	0.39		0.23	0	4	23	6	2		C. W. Kellogg.
Hermoso Rio Hood River		2,300	21	45.1	- 3.3	78	8 91	22	27	41 40	0.66	- 2.52	0.39	0	1	25 20	2	4	e. w.	Carl T. Hubbard.
Huntington		2, 165	10	51.8		82	6	22	25	53	0.04	- 0.42	0.03	0	3	13	13	7 5	e.	H. L. Hasbrouck. L. Connell.
Jacksonville	Jackson	1,640	23	52.5	-1.0 + 3.9	82 82 76	7	32	51	42	0.46	- 0.42 - 1.31 - 0.08	0.19	0	4	17	10	4		E. Britt.
Joseph Kerby		4,400 1,200	22	48.1	+ 3.9	76	8	27	26	37	1.32	- 0.08	0.60	6.0	3	18	7	6	8.	F. F. McCully. C. T. Canfield.
Klamath Agency	Klamath	4, 169	3	44.4		76	5	12	25†	58	1.19		0.60	0	2	20	7	4	nw.	Edson C. Watson.
Klamath Falls	do	4,100	22																	W. H. Heileman.
La Grande Lakeview		2,784 4,825	24 28	46. 9	- 2.9	78	8	16	28	44	1.86	+ 0.21	0. 52	0	6	22	5	4	W.	W. A. Worstell. Bert Rice.
McKenzie Bridge	Lane	1,400	10	49.6		74	15+	22	27	51	2.82	- 2.69	0.54	0	9	14	0	17	w.	Geo. Frissell.
McMinnville		182	24 10	51.2	-1.5 -2.1	70 78	16†	22 25 34	30	43	1.26	- 2.13	0.43	0	7	17	6	8	n.	M. E. Pettit.
Marshfield Medford		34 1,425	10	52.7 53.2	- 2.1	82	20	30	5 11	38	2.76 0.43		1.40 0.16	0	9	19	8	4	nw. n.	U. S. Weather Bureau. Do.
Merrill	Klamath	4,070	5																	Mrs. Agnes Ritchson.
Metolius	Crook	3,600									1 00		0.00		***					W. E. Lottman.
Mikkalo Miramonte Farm	Gilliam	1,400 195	23	52.9 51.4	- 1.2	84 73	10	24 28	26 29	50 34	1.20	- 1.87	0.66	0	8	23 13	6	12	w. n.	Frank Little. G. Muecke.
Monroe	Benton	350	14	50.9	- 1.2 - 2.5	72	7 7	30	29	32	1.64	- 1.64 - 2.29	0.94	0	6	12	10	9	n.	L. A. Peek.
Mount Angel Mount Hood	Marion	485 1,650	24	53.4	+ 0.2	70	7†	34 26	29 27†	27 35	1.38		0.47	0	5	16	4	11	n.	Dr. Urban Fisher.
Musick	Douglas	5,000	2	45.6		75 70	16	30		27	0.93 4.98		0.61 1.00	3.5	10	21	5	7 9	nw. sw.	S. G. Babson. Alex. Lundberg.
Newport	Lincoln	69	24	55.0	+ 0.8	75	20†	40	4† 5†	32	1.98	- 2.76	0.45	0	11	11	8	12	nw.	Wm. Matthews.
Paisley Paulina	Crook	4,500 4,000	8	47.0		74	7	26	27	31	0.45	******	0.19	0	3	20	6	5	nw.	E. C. Woodward. Orrin C. Mills.
Pendleton	Umatilla	1,070	22	50.8	- 0.7	93	8	12	28	57	0.49	- 0.70	0.22	0	5	17	11	3	sw.	E. F. Averill.
Pilot Rock	do	1,817	3	50.8		91	8	22	19	40	0.91		0.44	0	4	16	1	14	nw.	John P. McManus.
Pompeli Portland	Clackamas Multnomah	3,879 57	16	44.6 54.2	-1.8 + 0.9	71 78	7 7	22 28 34 38 20 10	5	32 34	5.55	- 0.43 - 2.70	1.74 0.52	0	6 5	19	5 11	7 14	sw. nw.	E. Coalman. U. S. Weather Bureau.
Port Orford	Curry	80	6	54.2	T 0.0	75	17+	38	29 27	29	3.82	- 2.10	2.15	0	7	19	5	7	n.	J. D. Loucks.
Prairie City	Grant	3, 425	-::-	46.1	- 3.1	79	8	20	28	45	1.62		0.51	0	6	19	3	9	W.	A. M. F. Kirchheiner.
Prineville	Crook	2,864 2,800	15	49.8		73 84	11 7	25	28 27 11†	53 52	1.48	+ 0.84	0.80	0	8	23 15	2 16	6	W. 80.	George Summers. E. F. Graham.
Ramsey	Wasco	1,350	10	45.4		70	16	25 24 18	27+ 18+	35	0.60		0.44	0	3	23	0	8	0.	Mrs. Iva B. Collins.
Range	Grant	3,500	3	44.2		79	7	18	18†	44	1.55		0.50	0	5	16	5 2 2	10		Mrs. Emma Arbuckie.
Richland	CrookBaker	2,350	10	45.2		76 82	8	17 19	27 28	43 51	1.06		0.73	0	2	26 22	2	3 7	W. W.	E. E. Foote. L. G. Morgan.
Riverside	Malheur	3,000	12	46. 9a	- 0.3	85a		9a	28 28 27 29 27 23 18	60=	0.45	- 0.19	0.25	0	2	18a	8a	40	W.	Mrs. Leah Fairman.
Roseburg	Douglas	510	33 21	51.8	- 0.3 - 1.0 - 1.2 - 0.7	78	7	32 32 13 30 25	27	34	1.21	- 1.40	0.48	0	6	8	17	6	8.	U. S. Weather Bureau.
SalemSilver Lake		120 4,700	14	44.5	- 0.7	69 74	7	13	29	31 49	0.81 0.72	- 2.27 - 0.23	0.30	0	7 2	11	17	17	n. w.	M. P. Baldwin. L. W. Charles.
siskiyou	Jackson	4, 115	3	49.4		74 81	7	30	23	31	1.07		0.27	0	8	13	10	8	n.	U. S. Weather Bureau.
parta	Baker	4, 150	20	49.8	+ 2.3	81	7† 7 7 1	25	18	41	0.27	- 1.07	0.12	0	. 3	22	7	2	W.	J. A. Wright.
Stafford The Dalles	Clackamas Wasco	400 112	15	51.1	- 1.4 - 1.3	76	9	32 25	28†	34	0.33	- 2.45 - 0.91	0.47	0	9	14	14	3	sw.	John P. Gage. S. L. Brooks.
l'oledo	Lincom	75	21 23			74	15		28	38	2.00	- 3.30	0.60	0	7	21 16		1	sw.	C. B. Crosno.
Jmatilla	Umatilla	340	23	51.7	- 1.1 - 2.6	86 78 86	15 8 8 8	32 22 16	28 28 28 29	41	0.22	- 0.49	0.14	0	3	16	9 2 4 7	13	0.	Mrs. Helen T. Duncan.
Union Vale	Union Malheur	2,787 2,242	19	47.7	- 0.7	86	8	16	28	44° 50	1.02	+ 0.42	0.40	0	6	18 22	7	4 2	s. ne.	Geo. Rieben. H. P. Osborne.
VanWallace Orchard	Harney	3,506	6										0. 30							Geo. Howe.
Wallace Orchard	Pelk	170	2	45.									0.00		10			10		Chas. A. Park.
Wallowa Wamie	Wallowa Wasco	2,935 1,500	10	45.1		79	71	17	281	52 50	2.05		0.65	0	10 2	16 13	3 0 6 2	12 18	nw. w.	L. J. Coverstone. A. J. Swift.
Warmspring	Crook	1,500	9			80	8 8 17	18	29	49	1.05		0.86	0	4	19	6	6	nw.	Claude C. Covey.
Vasco	Sherman	1,263	4			60	17	28	27		1.05		0. 52	0		24		5	W.	J. R. Howell.
Westfall Weston	Malheur Umatilla	3,000 1,800	19	43.2	+ 0.2	80 79 80 60 64 78 84 72	8† 8 7	14 17 18 28 26 20 20 16	28† 27† 29 27 19† 31 18 28	33 40 58 50	0.09	- 0.41	0.08	0 0 0 0 0	4 2 5 4	19 24 16 11	11	16	W. sw.	H. M. Gilliam. M. A. Baker.
Williams	Josephine	1,368	19	50.6	- 1.8	84	7	20	18	58	0.68	- 0.41 - 1.47	0. 42	0	5	22 16	4 5 12	4 3	n.	Francis J. Leroy.
Yonna	Klamath	4,146					6				1.09		0.46						8.	Jacob Ruecke.

[,] b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

^{**}Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

T. Precipitation is less than 0.01 inch rain or melted snow

Table 2.—Daily precipitation for October, 1911. District No. 12, Columbia Valley.

Stations.	Watershed.									1					1	ay c	of mo	ntn.				-											
		1	2	3	4	- 5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Montana.																																	
aconda	Missoula	*	. 62								*	1.48		T.	. 07			03	T						. 23				1				. 2
tte	do	. 60	T.	****							2, 30	T.			. 15		. 05	. 00				****											. 3
lumbia Falls	Flathead Bitter Root.	T.	T.						10000	14	73	.14	03	04	.02		.10																- (
st Anaconda	Missoula	. 67	.02								1.80	.02		T.	. 05			.01		T.					. 20						4000	****	. 2
rtine	Kootenal Bitter Root,	T.	. 02		****						****	1 10			. 05				****						. 05								. (
t Creek	Missoula	.06			****						. 40	. 60		****	. 22			.15		. 25	.14											T.	
lispell	Flathead Kootenai					1	30000																										
obýst Creek	Missoula	. 04	. 68								99	1.46			193			.10							. 09 T.								
moulahir	do								1		T.	. 60	.02		. 03		T.	T.	183		. 05						1						
ando	do										1.85	1.00	. 40	T.	. 13	T.		. 20				. 10				. 20		1					-
ilipsburg	do	. 15	1.25	.14							. 00	1.70	. 00		. US			.04	70							.10)						
asant Valley	Columbia Kootenai	****		T.							T.				T.			****	T.		****				30		T.					****	
son	Flathead		.72	. 38								.17	.10					.14							. 15								
ctorIgnatius	do		1. 27									ii	33		0.4		****	****							11	11	T.						
Regis	Missoula		****																											1			
tese	Bitter Root.																****								. 22				1	1			-
ompson Falls ! .	Columbia										. 13		T.		. 02			.01							. 05	. 09							1
llow Glen Stock	Missoula																																
Wyoming.																																	1
on	Snake																		****			****											
adford	do	. 48	. 43	. 30							. 38				. 20					****		****	****										
hler River		1.00	.30	.80	1.70			1			.90	. 75	1.00		.40	****		****	.09	****	T.			****		T.			1000			1111	
ran	do																											1					-
ke River	do	. 10	. 93	. 30	****	. 05				****	. 30	****	. 30	****	. 20	****						****				T.						***	-
Nevada.	Onehe		00								*					-																	
Jacinto	Snake,	*	. 80							****	-	. 50							****						****								-
	70-10									m		-																					1
Idaho.	Raft	. 40	. 55			****				T.	. 98	T.	****								****											***	-
																															1		1
oion	Snake											. 68						****															-
nobha	Payette		0							.17	. 35	.06																					-
erican Falls	Snake	.30	. 45								1.20	1.00	. 05																				
ekfoot Dam	Blackfoot			. 05						. 37	.36	. 20	.10		T.						02												-
us Creek	Payette	. 46	.32								1.67	.70													****	****					T.		
se mers Ferry	Boise Kootenai		. 07							. 61	1.36	. 24		****	T.												2						-
alder Mine	Boise	.37	. 40							.30	. 89	.57			.05										****							***	
hl	Snake	. 26									. 63	. 31	T.																				
dwell	Boise Lost R.Reg.	. 05	. 07		16		****				1.80	.17			.02																	***	-
nbridge	Weiser														.02														1::::				
lar Creek Dam	Snake Port Neuf	20	. 26						42	.38	1.02					10																	
de	Lost R. Reg.	. 30	. 2.6				1	1	. 20	. 38	1.	****	****		. 22	. 10			****	****												***	-
tonwood Creek	Boise																				****												
desac	Weiser Clearwater	.61					.96	6				****	. 45		****			****	****						****								-
ту	do						1	1.11			****								****						****								
ggs	Snake	. 29	1 000				****			.11	. 83				.09											T							-
mett	Payette	.02	. 05									. 67	.19																				
neyden Valley	Salmon Payette								0000	16	.20	. 53		****		***					****												-
net	Snake						Jenes.				***	.55																				1	
nns Ferry	Wood-Malad		.06							. 15	.30	.05																					-
nd Forks	St. Joe									. 24	. 92																			1		***	
mes Pass	Snake		T.						1000		. 13	.30																					
Tey	Boise Snake									. 44	. 95	.09	****		****					****	****												-
ley	Wood-Malad	.13	.01							. 26 T.	.76	. 05																					
springho Falls	Bruneau Snake	1.14								T.	1.03		05	****		****		****	****			****											-
ian Valley 1	Weiser	.06	. 59						10000		. 67																				1		
inlogg	Snake C. d'Alene		. 52				10000		1000		. 42						1.00																-
kham	Payette		.10								. 67	. 28	. 33										0.5									***	
skiaeview	Clearwater Pend Oreille		1.40						****		1.10	.50																					
dore	Snake	.50	. 55	.01						.26	. 20														.18								
viston	Clearwater	. 26	. 29							. 25	.30	. 04		.02	. 03			****		****					T.								
tle Camas	Boisedo									.32	. 47																						-
n Creek	Salmon										.80	. 50			.04																		
dows	Lost R. Reg. Salmon	****									.18																						-
ridian	Boise	.02	. 09							. 24	.57	. 31														. 04	1						
dle Fork	Weiser Clearwater	T.	T.	. 50							T.	. 66	.08		T.																		
	Snake	· MU	. 15							. 29	. 80	. 45	.01	. 02								****		****		****	****		Jane.		1	***	
ner	Palouse																																

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

Stations.	Watershed.									1997	10 10	4		-	- 1	Day	of m	onth	•													_
Stations.	W Bicroned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
laho-Continued.																																
z Perce	Clearwater	. 30	.38							. 36	. 92			. 48																		
kley	Snake	. 25	. 35							. 25	. 35																					
Hara Bar	Clearwaterdo	. 87 T.	40	.02 T.						53	. 97			01		. 02										****						
vette	Payette	.25	. 42							.53	. 37	.07																			T.	
aceful Valley	Snake																											****				
bble	Port Neuf Salmon	.16		.11							. 60	1.57	. 10		.01	4	1.1.										1111					
easant Valley	Boise	. 03								.19	. 57	. 31			T.																	
catello	Port Neuf	. 47	. 07							.12		. 39																				
catello Nursery	Snake	,	. 61								.59	. 98							1													
rthill	Kootenai		. 09								. 04																				****	
le Creek	Payette Wood-Malad	. 40	. 25							.20 T.	. 29	. 26														****				****	****	
chfieldseberry	Payette		.02							1.	. 01	. 0																				
seworth	Snake	.16	. 03								. 60																		***			
pert Maries	St. Joe	. 22								. 27	.74					0.							****		****	****	113		1			
mon	Salmon	.04	.37									1.10				2		1111						T.								
mon River Dam.	Snake									. 27	. 28	.00												****	10						****	
ndpointeep Hill	Pend Oreille Boise									.10	.37													****	. 10	****			1		T.	
oshone	Wood-Malad	. 38	.05 T.								.16	. 68	. 10	0 . 0	1																	
ver City	Owyhee	. 08	.17							. 09	. 48	.11										****								****	****	****
dier Creek	Wood-Malad Pend Oreille									.17	.16			0	1						****	1			.13							
ringfield	Snake	. 60									.78	. 45	.0	2											0.00							
gar	do	. 90	.54							. 15	. 41	. 3			1	0								****				1000				
nnysideipod Mountain	Payette									.11	. 34																					
vin Falls	Snake		.06							1 40	.75	. 35	2																			
rnon	do	. 45	. 95								.73	1.2											****			T						
allaceeiser	C. d'Alene Weiser	T.	. 27				***				. 00	.0				1					1111											
endell	Wood-Malad	. 24	T.								. 32	. 50	0 .2	5														T.				
Washington.							1						1			1.		1										1777				
erdeen	Coast				. 02					. 05			7	6 .1										. 34	. 28	1	3			. 05		. 03
acortesker	Puget Sound		T	T		.05	T							3									T.	.14							T.	
llingham	do			. 18			. U	9	. T.	T.		T.	T		1 T	0	4 T							T.	. 40		70			T.		.01
llingham, near	do				. 18		.0	6 T.				T.	T	. 1	1 .2	1 .0	.0	2		1 T.			T.		. 34		3 T.		1	1.		.01
verly	Columbia Puget Sound			.0	1 .19		l'i	0.0	6	. 08				3	1 .0	7 .0	7 .0							T.	. 32	. 20	0					. 04
emerton	do			. 00	. 04						.0	9		2	6 .3	2					1000				.09		9					.04
ewster imping Lake	Columbia Yakima	.0	3	T	T.					T.							1								.01	Jane .						
dar River	Puget Sound			. 25							. 6	7				9								. 20								10
ntralia	do			.0			T.		. T.	. 1		0									1000		T.	. 08	. 20							. 12
eney	Spokane Yakima		6											1							1:::					1	-					
arbrook	Puget Sound	1 .0	0	.00	3 .00	3	.0	7 .1	6						0 .2	3 .3	30	of Law		2 6 2 2 2					.11	1					. 0.	
lfax	Palouse	3	0									3				4		-							1.14				* ***	100	1	1.00
lvillenconully	Columbia Okanogan		5							1				1						· less					T.							
wiche	Yakima	0	2	0	1																			T.		.1	4					T.
escent	Spokane				. 0							0		-		1							****	****	.00		1	1:::				
venport	do		1 .4	4	T.				0	. 0	4 .1	2	-	150		9																
er Park	. Spokane									0	8 .1	9															3					7
etroit	Columbia.	1	4 0	. 2					0			3				77 . (94					1		.1	. 0		3					
xieyden	Wenatchee,		8 .0	2	0.0	1								(13 T										T.	.1	2					
uckabush	Puget Sound																															
ast Sound	Yakima		6									1:::													11		i					
llensburg	Columbia	0			1	1	1						1																			
rks	Coast			1	6		5	2		. 1.5	8				57	91 .	48							. 0	7 .10	0	4					5 .00
ort Simcoe	Yakima Columbia			0	1							2					**				-		1		T.							
oat Lakeold Basin	. Puget Sound	d		0	5 .1	1				0	7 .1	5				42 1.	23					xxxx			- × A	4 .0	7					1
old Basin	do																										Ó				- Anna	1
old Creek	Yakima Columbia		5	T										T																		
ranite Falls	. Puget Sound	d			1	1					3	11			40 .	21								4	0 .0	2						
rays River	. Coast																									0						
attonuntsville			1	T	T.	***	1 1	55														0	6									
ene Mountain	do														02										0							
ennewick	do		1	1	0							05		**																		
ettle Falls	Yakima	(ю																													
osmos	Columbia.	- 5	53 0	12 6	M	1400				1.1	3 .6	66			18 .	19 .	02								1	0						i .0
Center	Palouse	4	04 .0	1	7					2	4	io T			19																	1
crosse	Yakima	T	14 0	9 T	T	8 T				T			. 7	1. 7		04 .	02 7			. T					0	3 .(06					
ake Kachess	do		10	T							(16		1		24 .	10								.1.0	1 . (14					
ake Keechelus	do		19	-1 -1	44							10									-				T	1	11					
akesideaurel	. Columbia		32		T										11																	
surier	Trattle		32 05 .0	5								14			11/19	04		4.							0	7						
ester	. Puget Soun									1	0	50			10 .	25 .	08							1	4 .0	6 .5	26				4	7 .0
one Treeongmires Springs.											3 .0						30															
ost Creek	Columbia.										. 1				10																	
ucerne	do													· · · · ·		** **										1.7	05					
cConihe	do do	1	30		0 .0										20												20					1
					W-1 2 2 2																						05					

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

Stations,	Watershed.															Day	or mi	JILETE													-	
Oustions,	Wateration.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Washington-Con.																																
t. Pleasant	Coast							T.	.05				.13	T.											T.						T.	
oxee	Yakima	. 06												T.																		
ewport	Pend Oreille	T.								.14	. 30			T.										.07		.04					.09	
orth Head	Columbia	.02		. 62					.01	.32	.06		.01	. 65 T.	.07									.04		.01		****			.08	
orthportorth Yakima	Columbia Yakima			T.	.01	****	****			.00	.00			T.		1										.06						
utland	Columbia										T.													.04								
dessa	Puget Sound		****	T.		T.								T.											T.							24
ga	Puget Sound		****	10	****	****				.22	****	****		24	35	.00			****			****		T.	. 04	.22	****	****	****		T.	. 04
lympia	Okanogan	****	****	.10			****	****		. 22															. 02							
roville	Snake																															
arker	Yakima				**::																				.01						****	
eola	Snake	. 02	. 68		. 02			12		. 21	. 34					****		****							.01		****	****	****	****	****	
omeroyort Crescent	Coast							. 15	****	. 24			****	.20	. 19	T.	.01							. 02	.27	.18					T.	
ort Townsend	Puget Sound								.01	. 02																. 05						
uliman	Palouse		. 45							. 19	. 28		T.											****	. 01		·		- T		97	
ueets River	Coast		. 01	. 44	.01	T.	. 24	. 01	.01	1.07	. 05			.84			.03							.18	. 19	.09	T.	****	T.		.27	. 03
uiniault	Kettle	****		. 70	,		.07		.00	1.85	.04			.04			. 02			****	****	****		- 24	.02							
epublicex Creek	Columbia														1		3															
itzville	do										. 01														.01							
obertaville	do	. 46		. 50						T.				. 10	.05			****						T.	T.	.17	****		****	****		
ock Lake	Palouse				T.					T.	.10	T.						****	****						.03							
osaliausselis Ranch	Yakima	.24	T	T.	T.	1		****		T.				.02											T.	. 23						T.
eattle	Yakima Puget Sound			.18			T.		T.	. 07				. 33	.06	3								. 01	. 25						T.	
edro Woolley	do			. 04	. 10		.14			.02				.12	. 25	. 09								. 02	. 24	. 03						
xprong	Columbia	. 42		. 01	.11																	. 05	****			****	****		****			
kagit Power Dam.	Puget Sound							****							1										.10	. 60						
noqualmie Falls	do	****	. 10	.04	.11					. 01	. 20	T.	T.	. 28	. 20)	. 01							T.	.09	. 09						. 01
nyders Ranch	Columbia				T.																				. 10							
outh Bend	Coast	. 04		. 39	.06					1.08				.58	. 07	.06								.09	. 22	. 33					. 07	
pokane	Spokane			T.	T.					. 07 T.	.16	T.	****	T.	. 48	01		***					****	T.	.03	. 09		****	****	::::	****	T.
tate University	Puget Sound Columbia			1.	. 61	****		****		**			****	.12		.01									.01	. 07						
umner	Puget Sound		.02	. 07	. 05					.03	. 23			. 21		5								. 04	.04	. 25						. 04
unnyside	Yakima	.30			. 07				T.															.02	10	.04					.oi	T.
acoma	Puget Sound			.13			****		T.	. 04				. 35								****		.16		.07	1000	****	****		.10	
atoosh Island	Yakima	19	T.	.12		T.	.00	.02	.00	.04			. 00	.01						****	****					. 28						T.
onasket	Okanogan	.10	.02	.02										.10																		
ouchet	Columbia	. 07		. 05						T.	T.			T.	T.										T.	T.						
ouchet Ridge	do		1.25	. 65		. 15					T.	.50		T.	T.						****				10							
rinidad	do	. 04		.16						. 05	.03			.21	.01			****			****	****		02	.10	T.						****
ancouverashon Island	Coast Puget Sound	. 59	T.		T.				T	. 04				35							1111			. 01	.06		. 01	T.	. 01	T.	T.	T.
ahluke	Columbia	.12			. 02																					. 20						
Vallace	Okanogan													. 25											.04			1				****
Valla Walla	Columbia	. 30			. 03					.01				. 05	.0	8								.02	T.	. 02				****	****	
Vashougal	do	. 20	. 35	.18						.08				T.	.00				****					. 02	.17	****			1	1		
	do	. 20																														
Thite Salmon	do																							T.		T.						
Vilbur	do	T.	****	. 03						90				T.							****			.20								.10
Vind River	do	. 58		. 20	T.					. 38	. 33						1							. 20	.06	****			1			. 10
ale	do	. 40	. 23	.55						. 15				1 0							.04			. 22	. 03	. 04					. 01	
illah	Yakima	.14																														T.
indel	Snake			1.00							. 53	.10																				
0																	1	-				1										
Oregon.	-							1						1							1								1	1		
del	Southeast												****								****				****							
lhony	Drainage. Willamette		. 15	01	. 41	1		1		03	00	.01		. 22	2	0 .04																1
lbanyllingham	Deschutes	.14		.04			10000			. 02				0.00		-										T.						
na River	Southeast	. 15	. 20		. 05																											
	Drainage.				1	1	1							000			-									T.			-	1		
shland	Rogue Columbia:	T.			. 05					. 04	04		T	. 29		9 .00			T					16	.21						.07	T.
storia	Snake										.09			. 20																		
aker	do	. 48	.37	i	T.		1		1	. 39	. 13			1.05	.00	3														·		
lay City	Coast	. 33		1.00						. 84	. 09	. 01		. 60																		
ear Creek	Deschutes	. 29 T.											15	. UE														1			T.	.00
car vaney	Southeast Drainage.	A.	1.	.10						****			.10	1 .	1				1			1					1	1	1	1	1	-
eech Creek	John Day	. 26			. 20										. 2	2																
ellfountain	Willamette .	. 08	. 03	. 15	. 01				. 05	.13	. 05				.13	3																
end	Deschutes																															
g Basinack Butte	John Day Willamette .																															
lalock	Columbia	.31	. 20	. 30	.29									T.												. 04						
ue Mountain	Umatilla	. 25	1. 25			. 10									. 10	0																
Sawmill.						1	1									-	1															
rogan uena Vista	Malheur		. 23							.17	.11																					
uena vista	Snake Southeast	04		****	****			****		00				****						****						****						
urns	Drainage.	.04					****			. 09					1				1			1	1	1			1	1				
urns Mill	do	. 09		. 07	. 02					. 02					. 1	5																
utte Falls	Rogue		. 25	. 20	. 47				. 45	. 18				. 31	1 .0	2																
alifornia Gulch	Umatilla		1.34		. 06	3			. 07					.06																		
anyon City	John Day	. 20	. 35	Т.	.10					.18	. 28					9															1	
ascade Locks	Columbia Willamette.	46	40	97	16		****		17	32	00		1	.14	2 .1						dece.											
azadero	willamette .		. 13	.13	.03	3			1.11	.04	.06	3													. 03							
		38	. 07		.2					. 07				T.	.0	3																
nristmas Lake	Southeast	· SPC										1	4																			

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

Stations.	Watershed.				1										-	ay c	i mi	nth.			-,'					1	,						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	and the
egon—Continued.																																	
ndon	John Day																																
uille River ighthouse.	Coast			. 15	••••			****	. 30	100	****		1000	1.53	- 33		****							. 09	****	. 03					****		2
nucopiavallis	Snake Willamette	.57	.07	. 25	• • • •	••••	••••		.09	. 68	. 02		T.	.21	.30						• • • • •		T.			.01						****	1
cker Creek	Snake Deschutes	.06	. 03		.01					.02	. 03	T.		.02	.01																		0
yville	John Day	. 10	. 35		.18						. 01			.04												. 00							. 0
adwood	Coast Southeast	.10	.11	. 27	.03				.11	.41	. 43 T.			.95	.16								T.	.31	.01	. 05							2
raville	Drainage.	. 22	. 01	.16	T.					. 25	.04			.30	. 01									.04	.06	. 06					. 03	.08	8 1
ainfur	Umpqua Columbia	.22 .11 .44	.13	.17					.14	. 10				. 65	. 02											.13					. 01		
ncan	Umatilla		.80							. 25	. 35								.15														. 1
ho	Columbia	.20	.02		.26			****			.02															. 20							: 1
body	Southeast Drainage.	. 75		. 35						T.				.07									****			T.							-
gene	Willamette .	.06	. 21						. 02	. 05				.51																			-
frviewlls City	Coast Willamette.	`ii	. 35	.44		****					.01			.87									.04	****									
Glen	Coastdo	.01		. 35	.04				.05					1.16										. 02		.19							
rest Grove	Willamette .	.50		.37				. 05						. 36								. 15				. 23 T.							
rt Rock	Southeast Drainage.	. 15		. 25					****	T.	****			.00	1	****				****	****	****		****		1.					****		1
lice	Rogue Umpqua	.08	.23	. 20					.18	. 36	.08			1.57									.30		.09								
ncoe	Umpqua Columbia Umatilla	. 19			.27						.13		T.																				
endale	Umpqua																							****									
noraden Falls	Coastdo	. 29		1 60							.13			1.08										. 30	. 25	T.							:
inde Ronde	John Day														••••											****							
nts Pass	Rogue			. 15	. 02				.03	. 09				. 32																			-
ss Valley	John Day Snake			.01	. 09				****	.40	.09		. 01	ii									****	****		. 01					Т.		
mboot	Columbia	. 35	. 23							. 41	. 80	.14			.30																		
opy Home	Umpqua	. 20	. 24	.52	. 04				1.10	. 40				1.70	· m									. 20	.10								
zeldell	Deschutes Willamette . do	. 55	. 45 T.	. 38					.19	.13	T.			.50												T.							
adworks	Columbia	2.56	.81	.11 T.	. 04						. 68			T.	.01									.00		.10							1
rmiston	Umatilla Deschutes	.23	. 02																							. 00							
gard	Grande	. 20	.70								.10																						
od River	Ronde. Columbia									T.				. 03																			
overwardville	Willamette .	. 41	.37	. 28	.00					.36	.36	01			.27									. 04									-
ntington	Grnd. Ronde Snake John Day	.02		.01		.01																											
x Mine	Snake	. 04	. 19		.05	Т.				. 16	.15																						
ksonville	Rogue Grnd. Ronde	.46		.09					.16	.02	. 60			. 19	-	3								****									:
rby	Rogue Klamath																																
math Agency	do														.00																		
Grandevglen	Grnd. Ronde Rogue	. 57	1 . 52	. 105					.20					.20								****											:
ng Creek	John Day Pitt	. 45	.03		.13					.11					. 20																. T.		1
Kenzie Bridge	Williamette	.35	.43	.50	.08				. 15	. 54	.07			. 4	3 .2	2																	-
Minnville	do		. 25	.27	T.				.27	.08	.05			1.4	3 .18									.14	T.		4						
ury	Deschutes Umatilla	.30)		. 31																												
dford	Rogue Int. drainage	T.	.01	. 02	.10				T.	. 08	3			0	8 .0	3																	
tolius	Deschutes		o . UP	. 18	M . UR																												
kaloler Prairie	John Day	. 66	3 . OK	.00	1 . 15												1																
amonte Farm	Willamette	.4	5 .00 T.	.18	.02					.11	.07	7		2	7 .13	3										T							-
untain Home	Columbia	. 18	3	09						.41	1 .1			5	3 .3	5								1	1 .19		1						
unt Angel	Willamette	.61	1 .0	. 20						T.				2	2 T.											.00	2						
untain Ranch	Rogue Umpqua		. T.	.75						91	5 T.			1.0	3											1	0						
wport	Coast Deschutes	.0	4 .0	.44	.0	3					.00	3		4	2 .0	5								. 13	5 .01	1 .2	0						
noco Creek	do	1.0	7 .2	7	.3										0																		
yheesley	Owyhee S.E.drainage	T.	T.		.10											0																	
alina	Deschutes																																
ndleton	Umatilla	. 10	0 .2	0 .2	.0				30	11					1	0			T.														
ot Rock	Umatilla	1.7	2 .4	2	.0					. 0	1.2				1	0										. 1	6						
rtland	Willamette	. 5	2	12	2				T.	.10	3			. 2	0 . 0	5								. T.	T.	T.							
rt Orfordst	Coast Deschutes	8	0 .2	3	.0				6					. 2.1		0	8																
wer House	Walla Walla John Day	T.	1.0	7						T.	0 .1			T.	T.	1																	
ineville	Deschutes Rogue	. 4	3 .8	0	2	5								3																			
ospect				8 .26	6 . 4	20	1		2	1 . 1	5			1 3	ni . ()	CO.						Inne											

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

															1	Day	of mo	onth.															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	81	Total
regon—Continued.																																	
Ray Creek	Columbia Deschutes	. 20	.13	T.	.37				****		T.			T.												.08							0.
		01							10	.15		****		. 67																****			1.
eston	Umpqua			. 30					. 10	. 10	****	70													****								
iehland	Snake	. 33								. 73		T.																					1.
iverdale	Deschutes		****						****																								
iverside	Malheur		. 20							. 25																T.					T.		0.
ock Creek	Willamette	.12	T.		. 32				.11	.16				1.09										. 12	T.	T.							1.
oseburg	Umpqua	.16	.06	. 26	3				.03					. 48																			1.
osland	Deschutes		.03	.11	. 21									.07	.06											.04							1.
lem	Willamette	.12	.10							.03				.30	. 03									T.	0000	T.						1000	0.
neca	S.E.drainage		. 40		.07			1			.18													-								. 02	
ver Lake	do			T.	. 29				T.					T.											****							1.00	0.
skiyou	Rogue	.07								.16				10	14												06						1.
		. 55			.18		****		-10	. 10																- 00	.00			****			0.
sters	Deschutes	. 00					****	****		****												****	****			. 20							
arta	Snake		T.		. 10	.05	.12															****		****					T.				0.
afford	Willamette	. 47	.04	.14								.01		. 29	.17									.02									1.
arkey	Grnd. Ronde		. 44		. 08				.34			.06			. 26											. 08							1.
mmit	Williamette	. 20	T.	.30					T.	.37	.10	T.		.53	.16									.13		T.							1.
mmit Prairie	Deschutes		.38				1																										1.
sanville	John Day	30	. 75				. 15			15	56	1.07	T		12			2000					1000					200					3.
marack	do	. 65	. 67		. 40		. 20						**											****		****	01	****					1.
locaset	Snake	. 00		. 70		****	****			40	. 43				01									****			.01	****	****				1.
		200		. 70						. 40	. 93			on.	.U.															****	****		
ne Dalles	Columbia	. 30		****	10000	1 -				****				T.	****											.03		****					0.
nroof Cabin	Umatilia	. 25	. 52		. 15					.06	.13			****	.12											.13							1.
oledo	Coast	.10		. 60						. 50	.10													.20	.40								2.
rail	Rogue	. 05	.10	.10	.16				.06	.18	T.			. 40	.02																		1.
ask	Coast	. 20	.18	.50	.03					1.50			1.10											. 65	. 70								4.
natilla	Columbia	.04		14		1	0.00	1	1000			222		2000								00.0			.04	0000							0.
ion	COLUMN DESCRIPTION OF THE PROPERTY OF THE PROP									34	. 23	T.														T							-
ity	Snake									.04	. 20	*.		****	.00				****										****				***
de		00	.10		****	****	****	****		40	97	.10		****	.03				****														1.
10	Malheur					****	****	****		. 90	.01	. 10				0.000								****						****			
liey Falls	S.E.drainage	. 21	.24		.27	.04				.00				.01													T.					T.	0.
n	Malheur																																
allace Orchard	Willamette																																
alloupa	Grnd. Ronde	.10								. 52	.16	.02		.01	.06			T.							.04								.1.
allowa	do	. 19	. 65	.01	. 02					. 55	. 39	.02		.02	. 15											. 05							2.
amic	Deschutes	. 44		T.	1	1		0.00	2000													1000				.10				1000			0.
armspring	do	.86			.01				****																	. 20							1.
asco	Columbia	69	.08	. 00	.20		****							****									****			. 25				****		****	1.
	Commbis	1 00	.05			****	****							****	90			****	****		****					. 20				****	****		4.
elches	do	1.30	1.31	. 28			****			. 23	. 55			.11	. 30																		
estfall	Malheur																														.08	.01	0.
eston			. 85		. 15						. 30	T.														. 20							1.
illiams	Rogue			. 15	. 05		. 01		. 05					. 42																			0.4
onna	Int. drainage	.32			46					. 21					.10										-								1.0
		. 40.00			. 40																												-

^{*} Precipitation included in that of the next measurement.

Separate dates of falls not recorded.

I Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3 .- Maximum and minimum temperatures for October, 1911, District No. 12, Columbia Valley.

-0		Mon	tana.	-	Wyo	ming.				T.							Idaho).										
Date.	Kalis	spell.	Misso	oula.	Aft	on.	Во	ise.		ner's	Hot S	pring.	Lewi	ston.	Macl	kay.	Mead	lows.	Poca	tello.	Saln	non.	Shosh	none.	Veri	ion.	Wall	ace.
-19	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	57 55 50 58 53	40 44 40 33 33	64 55 58 53 63	49 36 37 29 27			64 50 62 63 62	46 42 37 45 37			62 60 66 68 70	51 44 34 45 36	66 63 66 63 62	50 48 40 47 43	62 61 56 56 61	35 31 29 26 33			66 49 57 65 60	41 39 38 36 36 36	70 60 58 65 68	28 28 35 30 30	57 52 61 67 62	39 39 39 38 35	56 46 50 64 65	35 34 33 28 34	63 52 54 60 49	40 34 32
6 7 8 9	58 66 70 70 70 58	32 35 35 37 42	64 69 79 74 62	28 32 31 37 42			71 80 82 75 45	38 42 50 41 41			73 81 86 82 50	37 39 52 47 40	73 82 88 63 48	38 43 45 46 44	61 66 67 69 61	32 28 27 27 27 31			64 73 73 73 42	38 36 44 37 33	65 66 68 75 62	31 33 30 35 35 35	69 73 77 73 60	27 37 43 41 34	63 79 73 72 45	28 29 35 36 31	64 72 78 56 43	31 34 46 35 32
1 2 3 4 5	82 59 58 52 54	48 41 35 41 31	47 63 58 57 58	37 40 35 43 32			51 66 69 57 59	44 39 43 42 35			55 67 76 68 67	44 35 44 35 38	59 69 63 61 68	45 43 49 44 41	52 48 57 56 56	29 26 32 29 29			44 59 69 62 53	36 39 32 38 28	41 48 52 60 58	32 30 27 36 35	48 60 69 59 56	38 34 37 42 28	36 45 61 54 51	31 32 30 36 25	49 64 65 51 58	45 35 44 36
6 7 8 9	56 57 50 45 49	40 30 23 24 24	64 60 53 49 53	29 44 26 20 26			65 62 55 54 56	-38 38 33 30 28			76 72 68 65 58	40 37 32 26 26	68 64 60 56 61	40 44 35 31 31	54 60 55 55 57	29 28 30 33 31			63 63 50 46 45	31 39 30 20 27	58 47 46 50 54	28 30 28 20 28	61 61 53 49 49	27 30 29 22 23	54 58 51 54 46	27 28 27 15 21	63 54 49 47 49	3 3 2 2 2 2
1 2 3 4 5	39	24 26 28 31 21	58 59 46 44 50	20 23 23 37 30			57 60 60 60 56	29 32 35 37 40			58 66 62 62 60	25 25 29 28 35	60 62 60 58 63	28 28 32 46 37	56 54 52 53 57	26 28 17 26 27			52 60 60 59 51	23 30 28 28 28 33	48 54 44 50 54	20 25 24 25 30	53 59 60 59 50	20 25 34 25 29	46 52 54 55 54	17 18 26 25 32	52 55 51 46 48	2 2 2 4 3
6 7 8 9 1	47 46 48	21 18 18 18 22 23	49 47 50 51 55 47	25 16 14 21 20 19			56 56 55 57 53 60	35 32 29 30 33 39			57	29 22 25 20 20 23	63 52 53 54 54 54 55	29 25 24 24 24 30 28	49 48 55 53 51 42	26 20 21 20 22 22 17			55 56 53 53 56 55	28 23 22 23 25 30	50 45 46 50 45 52	25 15 16 17 17 20	58 56 53 52 56 53	35 24 19 20 22 32	52 55 68 66 48 55	23 18 15 16 19 20	48 50 48 48 49 50	2 2 2 2 2 2 2 2 2
fns	53.6	30. 9	\$6.6	29.9			60.6	37.4			65. 6	34.3	62.5	38.0	56. 1	27.3			57.6	32.0	55. 1	27.2	58.9	31.2	55.7	26.6	54.4	32.
			11					MA					w	ashin	gton.				- 1101		0 5		- 11					

			. 1										W	ashin	gton.												2011	-13
Date.	Aber	deen.	Bla	ine.	Colv	rille.	Kos	mos.	Lake	side.		orth ad.	No Yak	rth ima,	Ode	SSB.	Po		Seat	tle.	Sixp	rong.	Spok	ane.	Taco	ms.	Tato	
	Max.	Min.	Max.	Mtn.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	61 62 56 63 65	47 45 48 42 37	62 58 59 59 60	35 36 45 46 35	56 66 51 67 64	41 42 26 36 35	52 52 54 59 65	40 40 42 42 34	56 68 58 62 68	45 39 40 46 38	59 59 54 58 57	52 51 49 49 48	59 64 58 61 62	48 42 33 44 33	64 60 65 62 65	32 33 34 32 31	55 54 55 54 52	35 33 41 39 35	58 61 59 60 61	47 48 50 48 42	61 68 60 60 63	48 48 39 51 35	58 63 58 60 57	48 40 41 46 41	58 61 57 60 64	45 49 48 45 39	56 54 55 57 56	47 48 49 48 47
6 7 8 9 10	60 70 62 60 63	38 39 38 46 42	62 72 68 59 58	50 42 43 52 45	68 76 82 61 67	31 32 31 32 33	70 83 72 58 54	37 36 39 46 47	69 71 76 70 71	43 44 45 52 46	56 56 59 54 58	52 51 51 51 51 51	67 70 75 66 65	36 39 39 41 41	68 82 86 59 63	35 41 42 38 41	60 62 61 54 55	44 40 43 44 39	65 74 63 58 59	51 46 49 51 49	71 75 85 65 66	38 61 48 47 47	69 80 84 56 54	34 44 51 47 44	63 73 64 58 59	47 45 48 51 50	56 62 59 54 57	53 52 52 48 49
11 12 13 14 15	66 62	41 48 50 51 45	57 65 54 58 56	36 37 46 48 50	71 74 67 65 66	36 32 31 25 30	63 75 55 54 68	46 35 41 44 47	68 60 65 66 69	44 46 49 50 45	54 61 55 57 62	46 51 51 51 51 54	68 66 62 66 68	43 35 41 41 41 42	68 70 63 68 66	32 38 46 40 36	52 53 54 57 56	34 42 44 45 45	60 64 56 60 67	45 44 50 49 53	68 70 63 68 70	41 44 48 38 37	57 66 66 59 64	44 37 47 44 44	60 61 56 60 67	43 44 47 50 51	53 58 55 57 55	49 49 49 49 51
16 17 18 19 20	63	47 42 36 33 34	57 55 55 54 62	51 41 31 29 34	65 58 57 55 61	24 23 21 25 22	68 61 62 66 67	46 41 29 27 28	68 61 58 59 56	46 40 34 32 37	54 53 60 60 68	50 46 46 49 51	70 62 58 49 61	39 40 35 28 30	70 68 55 58 60	34 30 26 20 20	52 54 54 55 57	38 35 33 31 39	58 56 56 58 62	49 44 39 40 43	65 70 76 60 60	38 42 38 31 34	58 54 57 57	39 39 31 28 35	55 54 55 57 60	50 41 36 34 36	51 49 56 52 62	47 45 44 46 48
21 22 23 24 25	63 54	41 38 49 49 46	56 55 54 52 61	30 30 37 48 38	60 61 55 47 48	19 21 25 34 21	74 64 59 57 66	32 28 34 47 44	52 59 60 56 56	33 33 39 45 36	71 54 53 54 61	51 49 51 50 50	61 62 64 66 58	26 27 30 45 45	63 64 66 66 58	19 23 25 28 26	53 52 51 58	38 34 43 43 41	62 59 56 57 57	46 40 50 51 49	62 67 66 59 54	34 37 44 30 25	61 61 59 47 56	26 26 31 39 37	62 60 56 58 55	36 36 48 50 49	59 87 53 53 58 56	49 48 50 50 48
26 27 28 29 30	63 56 64	33 31 33 34 34 34	56 53 54 54 56 57	29 32 27 27 35 45	52 47 55 54 57 56	18 16 14 15 17	70 67 63 64 58 56	25 24 24 26 33 46	56 54 53 54 59 54	32 30 27 28 35 35	63 59 53 53 52 54	48 48 48 45 50 50	58 56 56 56 60 59	31 25 24 23 35 37	56 57 56 58 54 58	23 12 12 17 20 20	53 51 50 50 52 53	34 31 32 30 43 43	59 56 54 52 56 55	41 36 38 36 45 47	56 58 57 58 60 60	27 34 35 33 36 36	56 50 51 50 55 55 53	32 22 19 19 27 24	57 57 56 55 56 56	38 33 34 34 43 43	57 54 50 51 53 - 54	48 45 45 44 48 48
Mns	62.1	41.0	58.0	39.0	60.9	26.6	63.1	37.1	61.7	39.8	57.5	49.7	62.4	36.1	63.7	29. 2	54.5	38.4	59.3	45.7	64.5	39.5	59.5	36. 3	59.0	43. 4	55. 2	48. 2

TABLE 3 .- Maximum and minimum temperatures for October, 1911. District No. 12-Continued.

	Walle	W-N-											Oreg	gon.										
Date.	Walla Wi		Ashl	and.	Ba	ker.	Eug	ene.	Gold	Beach.	Herm	iston.	Marsi	nfield.	Port	land.	Prin	eville.	Rose	burg.	The	Dalles.	V	ale.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	55 62 65 55 65	47 48 47 47 47	63 69 50 56 61	43 44 36 41 34	54 51 53 56 58	42 34 32 39 - 37	59 59 54 60 69	46 47 44 42 35			71 70 65 70 67	44 48 39 47 33	61 63 56 62 64	42 44 42 36 34	54 64 55 63 64	51 51 49 46 41	66 69 67 54 66	33 32 30 40 31	60 62 55 62 67	44 47 43 41 39	59 63 64 58 64	51 53 41 40 36	72 70 70 70 70 74	4 3: 2 4 3:
	86	49 49 55 51 47	64 69 80 58 56	37 48 43 41 38	67 72 76 66 46	31 38 51 38 38	63 75 62 58 60	41 44 44 46 45			73 72 92 68 67	33 42 40 52 51	67 67 56 60 65	37 44 43 46 39	68 78 64 58 60	44 44 48 49 49	68 67 67 66 69	34 33 30 34 33	72 78 60 58 62	40 44 49 44 40	65 69 71 72 63	39 41 42 50 45	72 77 86 80 52	25 26 36 44 46
	72 72 62	50 43 52 47 48	62 74 61 55 67	33 38 48 39 36	57 57 58 52 60	39 36 40 37 32	58 68 64 64 67	41 39 45 45 40			71 73 70 68 75	41 34 39 46 41	65 64 62 65 72	37 38 50 41 40	60 68 60 62 70	46 41 50 51 51	73 70 68 71 67	30 30 31 29 30	61 68 60 64 67	38 38 45 42 40	65 68 63 63 68	42 38 45 44 40	57 -61 59 63 66	4 3 3 4 2
	64 58 59	54 46 36 34 36	71 65 64 71 72	54 43 38 42 41	63 58 50 52 52	33 33 30 22 27	66 64 60 63 71	43 32 32 34 33			73 72 65 63 62	38 34 26 21 25	64 59 69 70 78	45 42 37 40 40	66 61 62 65 66	53 48 39 43 45	70 70 69 69 63	26 28 21 24 29	64 64 57 61 65	46 40 36 36 36	71 65 62 60 63	42 41 37 29 29	67 71 64 60 61	3 3 2 2
	63	37 39 44 50 42	75 67 61 69 61	50 41 52 42 41	58 59 55 54 54	25 25 31 33 37	65 62 63 64 59	31 35 49 42 44			64 63 65 72 62	20 21 22 42 45	57 62 62 66 59	40 50 51 43 47	68 61 59 60 62	45 40 51 52 49	62 67 70 67 60	23 24 20 25 42	68 56 65 62 60	40 40 45 43 40	63 60 65 . 66 58	29 28 44 52 50	59 61 68 68 66	16 16 22 31 33
	50 53 52 57 57 57	33 38 32 32 37 42	66 66 64 65 63 60	39 40 38 41 46 41	52 53 55 56 51 56	27 22 22 22 29 29	66 61 60 60 55 59	34 30 32 31 37 41			58 55 56 58 60 62	22 17 16 19 25 29	73 73 59 54 59 63	41 37 36 42 46 42	66 63 59 58 57 55	43 38 43 34 46 46	62 58 60 65 67 63	23 10 16 12 26 23	68 66 67 61 54 60	35 32 37 40 41 41	58 54 54 55 57 61	29 26 25 27 41 44	64 59 50 58 56 65	11 12 22 2

*, b, *, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

PAPERS ON CLIMATOLOGY IN RELATION TO AGRICULTURE, TRANSPORTATION, WATER RESOURCES, ETC.

THE CYCLONIC DISTRIBUTION OF RAINFALL IN THE UNITED STATES, ETC.

By WILLIAM GARDNER REED, University of California, Berkeley, Cal. (Dated Nov. 1, 1911.)

That the importance of rainfall as a climatic element has long been recognized is shown by the fact that the 1910 volume of "British Rainfall" 2 marks the completion of 50 years of continuous activity by the British Rainfall Organization. This society, although supported wholly by subscriptions and dependent entirely upon voluntary observers for its records, now collects daily records of rainfall from nearly 5,000 stations in the British Isles and publishes the results in an excellent annual volume, which may well serve as a model for the treatment of rainfall data.

The earliest rainfall maps were probably those showing mean annual amounts of precipitation. These maps were followed in a short time by maps of the precipitation for periods shorter than the year, which were the month and later the season and later still the week. the treatment of climatic data regular periods have obvious advantages. There is no doubt as to the beginning or the ending of a calendar period; if we begin at midnight on a certain date and end at midnight on another date, anyone can locate these times with perfect accuracy. A year or a month is definite, it can always be determined, and it is comparable with other years or

months.

But the treatment of the data by mean annual amounts does not give any idea of the differences between years, and maps of individual years were soon introduced. These, however, do not give a clue to the conditions prevailing within the year; we do not know whether the rain comes in all parts of the year or whether it is limited to certain seasons. Maps of the monthly and seasonal amounts of precipitation were, therefore, introduced to give this necessary information in addition to that furnished by the annual maps. Such maps may be found in the Atlas of Meteorology, and in the reports of the United States Weather Bureau, and other meteorological services. Maps for the amounts of precipitation for months and seasons lead inevitably to the preparation of maps showing the departures from the mean for any given season. For the United States such maps have been drawn by the Weather Bureau.

As the treatment of data becomes more refined there is a tendency to shorten the period. In the United States this has been accomplished by the publication of the National Weather Bulletin, which is issued weekly during the crop-growing season and monthly during the rest of the year. This bulletin shows by maps the amount of rainfall for the calendar week during the crop season and the amount for the month during the rest of the year; it shows also the departure of the individual week or month from the normal for the period as determined from all the preceding years of the record. It is probable that for many parts of the country a true normal has not yet been reached, but that the so-called

normal is a longer or shorter period mean, depending on the length of time the station has been established.

The week seems to be as short a regular period as it is desirable to use. For a large part of the United States precipitation is to a great extent a cyclonic phenomenon, which means that its distribution within the week is accidental or due to controls which we can not as yet fully recognize. Besides this, the rainfall from a single cyclone in the United States may not, and frequently does not, all occur within the same calendar week for the whole country. The converse of the foregoing is also true; the rainfall of a single calendar week is frequently not all due to the same cyclone.

The close relation between the occurrence of much of the precipitation in the United States and that of cyclones leads to the suggestion that it is the cyclonic unit to which rainfall should be referred and by which rainfall should be studied.⁵ The most obvious difficulty in the use of the cyclonic unit, beside its irregularity, is that not all the precipitation can be referred to cyclones. Besides the strictly noncyclonic rains, of which Clayton recognizes 5 classes, there are frequently considerable areas of rainfall, which, although cyclonic in character, can not be referred definitely to any existing cyclone as shown by the weather maps, owing to the weakness or complexity of the pressure conditions.

For a presentation of the rainfall record it will always be necessary to use the monthly and annual amounts, but for a wholly adequate knowledge of the conditions of precipitation for an individual month, season, or year in an extratropical region some use must be made of the cyclonic unit in rainfall. This was recognized by Loomis as is shown by his "Contributions to Meteorology," a where a number of individual cases of rain over the United States, Europe, and the Atlantic Ocean are studied in relation to the pressure distribution, movements of rain areas, and their relation to the other weather elements. Under the head of the "Weather of Baltimore," lished in the Maryland Weather Service, typical cyclones are studied as they affect the distribution of the weather elements. Many weather maps are shown as types of weather conditions due to the varying pressure and other

relations accompanying cyclones.7

In the annual volumes of "British Rainfall" each heavy rain occurring in the British Isles during the year is noted and the paths of the cyclones to which these heavy rains are due are studied in their relation to the distribution of precipitation. The results of the studies are published by the director in the annual volume of the organization and elsewhere.* The more important of these heavy rains are mapped each year and it is by

these maps that the relations are best shown.

In view of the success of the British work and of the importance of the cyclonic rainfall in the United States,

¹ This study was begun as a part of the work in the course in climatological research in Harvard University in 1910-11, under the direction of Prof. R. De C. Ward.

British Rainfall annually since 1862. London. Edward Stanford.

Bartholomew, J. G. Physical Atlas, Volume III, Meteorology. Edinburgh, 1899.

See Monthly Weather Review, Washington, monthly.
United States Weather Bureau, Bulletin C, Atlas, Charts of Rainfall and Snow in the United States. Washington, 1894.
United States Weather Bureau, Bulletin C, Climatology of the United States, by A. J. Henry. Washington, 1906.
United States Weather Bureau, Climatic Charts of the United States, Washington, 1906.
United States Weather Bureau, National Weather Bulletin, weekly during the crop-growing season and monthly during the rest of the year.
Maryland Weather Service, vol. 2, p. 382-363. Baltimore, 1907.

For a discussion of the cyclonic unit, in climatology see Reed, W. G., jr., "The Study of Phenomenal Climatology," Quart. Jour. Roy. Met. Soc., vol. 36, pp. 39-48, 1910.
Ward, R. DeC., "Suggestions Concerning a more Rational Treatment of Climatology," Rep. 8 Int. Geog. Congress, Washington, 1904, pp. 277-293. Hann, Julius, "Handbuch der Klimatologie," 3d Ed., Stuttgart, 1908, Vol. 1, pp. 39-91.

Loomis, E., "Contributions to Meteorology," Part III. Memoirs, Nat. Acad. Sci., vol. 5, 2d memoir, pp. 65-109, Washington, 1889.

Mill, H. R., "Map Studies of Rainfall," Quart. Jour. Roy. Met. Soc., vol. 34, pp.65-86, 1908. "On the Unsymmetrical Distribution of Rainfall about the Path of a Barometric Depression Crossing the British Isles." Rep. 8 Int. Geog. Congress, Washington, 1904, pp. 393-396.

an attempt has been made to apply the cyclonic unit to the rainfall of this country and to show cyclonic distribution of this weather element by maps. The accuracy with which the British Rainfall Organization is able to work can not be approached in this country. The data for only about 170 stations appear on the Washington weather maps, but rainfall data are obtained at some 3,000 to 4,000 stations including those of the cooperative observers. The daily amounts for all these stations are published later in the Monthly Weather Review, together with excessive amounts for short periods of time. The lack of an organization to handle the data has made it impossible to make this study more than a preliminary suggestion of what it may be possible to do with rainfall data by the cyclonic unit in the United States.

This study has been made on the basis of the Washington daily weather maps because these furnished the data immediately and in a usable form and because it was deemed best not to attempt too much at the beginning. To use all the rainfall stations in the United States will probably require the preparation of a special map of the country, as all the published maps, which show the location of the stations and are large enough to carry the data, are confused by too much topographic and other detail. For a study of the data from the stations used on the daily weather map, the Washington base map is excellent; the size is convenient, being small enough for easy handling and yet large enough to carry the data; besides this the locations of the daily reporting stations

Early in the study of the weather maps it was seen that many of the cyclones were not well enough defined to be followed across the country and that the relation between the more poorly marked pressure areas and the precipitation was in many cases very obscure. The method followed in "British Rainfall," which consists in taking the days of heavy rainfall, did not seem practicable for the United States and was abandoned after a brief trial. Cyclones are over the United States during parts of several days and not, as is generally the case in Great Britain, for one day only. In the United States rain is often falling from two or more cyclones at the same time and also from local areas of low pressure, which are perhaps embryo cyclones; some of these local low areas develop into cyclones and move across the country.

The cyclones whose tracks have been plotted by the Weather Bureau on the Washington daily weather maps are well defined both as to the low-pressure area and as to the path. These cyclones and such others as could accurately be followed by inspection of the Washington maps were selected for the purposes of this study. Only cyclones occurring between January 1, 1910, and October 1, 1911, are included in this work.

As yet no means has been devised for determining the beginning of a cyclone. There is often a rather large area of low pressure over the Basin and Rocky Mountain region in which smaller areas of lower pressure shift slowly back and forth with little apparent system. There may be occasional light rains in places, but in general the whole region is dry. Of course, there is no well-defined wind system under such pressure conditions. These conditions may continue for several days without much change in position and with little or no change in depth except for the weak shifting of the lower areas within the general low area. After a time the whole may develop into a single well-marked cyclone and move eastward generally along a northern track. In other instances, after the weak shifting of a large but shallow low area over the Basin region, a part may break off from the general low pressure area and move eastward.

This may take place in the northern part of the general low area in which case the moving cyclone will usually follow a northern track; or in the southern part of the area, when a southern or Mississippi Valley track will usually be followed. In these cases the greater area of the large low pressure remains over the Basin to fill up or to develop other cyclones.

The most usual case seems, however, to be that in which the pressure shifts weakly over the Basin region; but is in general lower than the surrounding pressures; a new and distinct cyclone develops rather suddenly to the southeast of the general low pressure area and moves across the country leaving the larger area to die out or to continue. Figure 1 shows the movement of the center of the lowest pressure in a case of this kind in the latter part of April, 1911. No account is here taken of the numerous subsidiary low pressure areas, of which there were several at times. The cyclone which finally began to move eastward from southern Colorado was at no time a part of the larger low pressure area, but was developed in the vicinity of Pueblo, Colo. It is possible that there is no connection between the cyclone which moved eastward and the general low pressure area, but the suggestion is strong that the moving area was "induced" by the weakly shifting larger area over the basin. As this study was not directly related to the question of rainfall distribution it has not been pursued further, but it opens up an interesting field—that of the origin of cyclones in the United States.

A study of the maps immediately preceding those on which storm tracks are drawn shows that it is not by chance that most of the tracks begin east of the Rocky Mountains. That these conditions are not wholly due to the fact that there is but one map a day was to some extent shown by a study of tracings from the 8 p. m. Washington "scratch" maps. These maps, instead of showing that there was a systematic movement of the small areas of lower pressure, merely indicated increased irregularity and complexity of their movements. It is, perhaps, not safe to say that more frequent maps would not reduce these movements to some kind of order, but it may be said with some certainty that, for the purposes of such a study as this, the labor involved in the preparation of so large a number of maps would be out of all proportion to the results obtained.

While much of the rain of the Basin and Mountain region is cyclonic and should be classed as such, as should also much of the rain of the region farther west, no practical means has been found for including it with the proper cyclone. This is the general rule, but exceptions are by no means unknown; figure 2 shows the case of a cyclone which may be traced from off the coast of Washington eastward along a northern track to Newfoundland. Another case of a cyclone from the Pacific coast is shown in figure 3. This cyclone may be traced from off the coast of Washington southeastward across Washington, Idaho, and Wyoming, and thence to northern Louisiana; from here it passed eastward on a southern track across the Gulf States passing off the land near Hatteras. The cyclone was large and well developed both as to pressure and rainfall conditions throughout its passage across the country. A study of the storm tracks as plotted by the Weather Bureau will, however, show these cases to be the exception rather than the rule.

Many cyclones are delivered to the United States from Canada more or less completely formed, if a constantly reforming cyclone may properly be spoken of as complete. The moving conditions, which cause the advance of an area of low pressure, enter the United States from Canada between the Rocky Mountains and the Great Lakes and move eastward, accompanied by rainfall and wind systems along the tracks in the United States. Figure 4 is a good example of a formed cyclone entering the United States from Canada. As a general thing the rainfall of these cyclones is not of great importance until they have progressed eastwardly far enough to come within the influence of the moist winds from the Lakes or the Gulf, but the pressure conditions are often as well marked when the cyclone enters the United States as at any time in its history while crossing the American continent.

The term "smear" has been introduced by Mill in his work on the rainfall from the cyclones crossing the British Isles;¹ this includes all the precipitation in an area which is due to the passage of a single cyclone. As this term is in the literature, it seems well to use it in a discussion of the cyclonic rainfall of the United States. In this paper the term "smear" will be used to designate the rainfall from a single cyclone in its passage across the continent, or the rainfall from two cyclones which unite and leave the continent as one. In a few cases it has been difficult to separate the smears of successive cyclones. As there is but one map available for each 24 hours, the front of the smear of the second cyclone sometimes overlaps the rear of the first cyclone, when two cyclones have been very near together. But this has not proved a serious matter in practice, and the difficulty would disappear in nearly all cases if more frequent maps were available. In the very few remaining cases it is probable that the rainfall is practically continuous and that the overlapping represents the actual meteorological conditions.

The proper treatment of thunderstorm rains offers another difficulty. In many cases these rains are located so close to the general rain areas of the cyclones that it is not possible to separate them. There is, however, some justification for including with the cyclonic precipitation those thunderstorm rains, which are closely related to the cyclone. Many of the thunderstorms in the United States are the result of the pressure or other conditions due to the cyclone, and the rain from these thunderstorms may properly be regarded as cyclonic precipitation. A case of an area of thunderstorm rains within the general rain area of a cyclone is shown in figure 5. This map is taken from the Washington daily weather map for July 23, 1911. It shows the conditions of a well-developed cyclone central over Iowa. The rain area has the appearance of the usual rain area of a cyclone of this type, but the map shows the area of thunderstorm rains by heavier shading. It will be seen that it is impossible to separate the thunderstorm rain from the general rain without considerably more data than are given by the daily weather maps.

The method adopted in treating thunderstorm rains for the purposes of this study has been to include in the cyclonic precipitation all such rains which occur within the general rain area of the cyclone, or which are continuous with the general rain area, and to exclude all other thunderstorm rains. In practice it has not been at all difficult to make this distinction; there have been practically no doubtful cases. The thunderstorm rain areas have been closely related to the cyclones or have occurred, isolated or in groups, clearly distinct from areas

of cyclonic control.

In the study of the smears for Great Britain, Mill finds that there is usually a continuous strip of heavy rainfall (1 inch or more) across the island. The earlier published maps do not show the areas for other amounts than 1 inch or more, and no distinction is made between the heavier and lighter falls in this area. In "British Rainfall, 1910," however, several maps of rain smears are shown on which the isohyets, or lines of equal rainfall, of 0.25", 0.5", 1.0", 2.0", 3.0", and 4.0" are drawn. On these maps the area of 1 inch and over is continuous, but the areas of greater amounts are very irregular.

In the work for the United States the smear of rainfall for each cyclone was plotted on a map of the country. The daily weather maps which showed the cyclone or any part of it were taken in order, and the sum of the daily amounts of precipitation due to the cyclone was plotted at the location of the station on the map. A convenient method of accomplishing this has been to plot at the location of each station on a blank map the rainfall from the cyclone for 24 hours, as shown by the daily weather map. The rainfall for the next 24 hours was plotted on the same map; at the majority of stations rain occurred from the same cyclone on more than one day; that is, rain at least lasted over the observation hour, 8 a. m., seventy-fifth meridian time, even if its duration was less than 24 hours. In this case the amount for the second day at the station was added to that of the first day, and the total amount for the 48 hours was plotted at the location of the station, replacing the 24hour amount already there. This process was continued for as many days as there was any part of the cyclone over the country. In some cases there were stations where the precipitation from the cyclone under consideration all occurred within one 24-hour period, 8 a. m. to 8 a. m., seventy-fifth meridian time. In such cases the amount set down from the first map showing precipitation from the cyclone at the station was the final amount shown. In other cases there were three or even more days on which rain from the same cyclone fell at some stations, and here the amount was increased by that falling each day until the cyclone moved away from the station. After the last day the map showed at the location of each station the total amount of precipitation due to the passage of the cyclone in question.

The amounts of precipitation shown on the map by figures at the stations representing inches and hundredths could not be easily studied, and some method was necessary to get the figures and locations into groups so that the relations could be easily seen. The obvious and usual method of grouping such data to bring out the relations is the drawing of isohyets of convenient values, which method has been followed in this study. The values for which isohyets are to be drawn must, necessarily, be somewhat arbitrarily chosen. In the present case these values are the isohyet of "trace" or "T," that of 0.5", that of 1.0", and that of 2.0"; in some cases higher values than 2.0" have been used, but for most of the maps the 2.0" isohyet was the highest drawn. In the shading of the maps all areas of 2.0" and over have been shaded alike. These values are the same as used by the Weather Bureau in the National Weather Bulletin, where they have proved satisfactory. It will be seen also that they are the same as those used in "British Rainfall" with the exception that there are a greater number of isohyets

¹ Mill, H. R., "Map Studies of Rainfall," Quart. Jour. Roy. Met. Soc., vol. 34, p. 75, 1908.
"On the Unsymmetrical Distribution of Rainfall about the Path of a Barometric Depression crossing the British Isles." Rep. 8 Int. Geog. Congress, Washington, 1904,

pp. 393-396.

Mill, H. R., "Map Studies of Rainfall," Quart. Jour. Roy. Met. Soc., vol. 34, pp. 65-86. 1908.

"On the Unsymmetrical Distribution of Rainfall about the Path of a Barometric Depression crossing the British Isles." Rep. 8 Int. Geog. Congress, Washington, 1904,

pp. 393–396.

3 "British Rainfall, 1910," Part 2, pp. [105]–[140]. London, 1911.

4 A convenient map is the Washington daily weather base map: United States Weather Bureau "Form Map C."

used in the latter publication. Other values for the isohyets would undoubtedly make some differences in the appearance of the smears; but would not, of course, alter the facts of rainfall distribution. A theoretical objection to the use of these values is that they do not show a regular increase in the amount of precipitation as they would if they were drawn for every half inch of rainfall (0.5", 1.0", 1.5", 2.0", and 2.5"). Each isohyet except 0.5", however, represents twice the depth of precipitation as the next lower line, and shows, to this extent at least, a regular increase in the amount of rain. But the test of such maps as these is their usefulness in practice, and the maps of rain smear have stood this test in England and for this study in the United States.

As stated above, the rain smears of the British cyclones show considerable continuous areas of 1 inch and over. In the United States the area for 1 inch and over does not show this continuity to so great an extent. Here the area of 1 inch or more is seldom wholly continuous. It is, however, probable this difference be-tween Great Britain and this country is due mostly to the difference in area and the fact that no part of the British Isles is any great distance from the sea. It is also to be noted that the smears which show the really heavy falls of rain and which on the whole are the best developed and the most typical do show considerable continuous areas where more than 1 inch of precipitation was recorded during the passage of the cyclone. Figure 6 shows a case where the area of over 1 inch is considerably broken, and figures 3, 7, and 8 cases where this amount is continuous over considerable areas. Less frequently the areas for the lower values are not continuous. Figure 6 shows an extreme case of this sort. Here there are 4 distinct areas where the precipitation from the cyclone was over half an inch. Nearly all the cases studied show outlying areas of half an inch or more which are surrounded by areas of lighter precipitation; for examples, besides figure 6, see figures 2 and 9. In a few cases the areas in which rain has fallen are entirely separated by areas of no rain as is the case in figure 10.

The study of these maps seems to show that there are usually broad areas of more than half an inch of rainfall in most of our cyclones; there is the suggestion that the areas for the most part have a precipitation of a little less than an inch and that the isohyet of 0.8" or 0.9" would show rather large continuous areas. These lines, however, have not been drawn for the majority of the cases and no conclusion can be stated; the isohyets drawn have proven satisfactory for such a general study as this must necessarily be. That of 0.5" may be taken to show the relations for the large areas. Of course, the accuracy reached by the British Rainfall Organization, where for maps of smears in England with a scale of about 250 miles to the inch, the boundaries of the areas of precipitation of different amounts are generally correct within the thickness of the lines,1 can not be approached for this country. The boundaries of the areas on the maps accompanying this paper can not be taken as correct without a considerable allowance for error; most of the rain areas shown could be considerably altered and still be correct for the facts as known from the data taken from the daily weather maps, even from the Washington maps, which contain more data than any of the station maps. With the data from all the cooperative observers' stations as well as those from the regular Weather Bureau stations it is probable that it would be possible to draw the areas with an approach to the accuracy of

the British maps, but even then this accuracy can not be equaled because there are fewer stations in a much greater extent of country.

That the regions of heavy rainfall should show a distinct relation to the Gulf of Mexico, the Mississippi Valley, the Great Lakes, and the Atlantic Ocean is to be expected. The Gulf influence is shown in figures 2, 3, 4, and 11; the Mississippi influence is marked in the cases shown by figures 2, 4, and 7, and comes out to a lesser extent in figures 3, 8, and 10. The importance of the Great Lakes is shown by all the smear maps, with the exception of figures 2 and 11, in which cases the tracks of the cyclones were far south. All the smears show the influence of the Atlantic Ocean, but the influence is most marked in the cases shown by figures 3, 4, 8, and 10. The Pacific Ocean shows no influence in most of the cases indicated by the figures. Its influence can be seen, to some extent, from figures 2, 3, 6, and 10, although in the case of figure 10 this influence was too slight to give much precipitation.

slight to give much precipitation.

It will be noted that the relations between the distribution of precipitation and the bodies of water is not at all definite or regular. An inspection of the maps will show that these relations undoubtedly exist in a general way, but a closer study of them and of others which have been drawn does not show that any exact relation exists between the location of the areas of heavy rainfall and the water bodies. It is possible that a detailed study of the wind direction and velocity in relation to the rainfall areas will bring out some relation which can not now be seen. As far as the study has gone at present the rainfall may be said in general to be heavier in the vicinity of the great water bodies than it is far from them, but no more exact statement seems to be justified.

There is probably some relation between the regions of heaviest precipitation and the storm tracks. The cyclones shown in figures 2 and 11 have tracks which are rather far south, and these two cyclones show important precipitation in the Gulf and none in the Lake regions; but figure 4 also shows heavy rainfall in the Gulf region, although the storm passed on a northern track; it should be noted, however, that in the latter case the heavy rainfall is due in part to thunderstorms. This same diffi-culty existed on all the maps studied. The paths of the cyclones in the period studied have been so varied that no classification of them has been practicable. It is possible to recognize the northern and southern tracks and a series of tracks between them, but so far no relation of importance has yet come out except in such cases as are shown by figure 11, where an extreme southern track gave precipitation only in the Gulf and not in the Lake region. In most of the cases studied the area of heavy rainfall was not far from the center of the track; the maps, figures 2, southern cyclone only, 4, 8, and 9, show heavy precipitation on the track of the cyclone. Perhaps there are other cases in which the areas of heavy rainfall are on the track; where the centers are charted only once in 12 hours there is often considerable uncertainty as to their location between the times of observation. If Loomis is right in supposing that there is a tendency for the cyclone to move toward the area of heaviest precipitation,² and there is no reason to think that there is not at least a tendency of this sort, we should expect to find the path near the areas of heavy rainfall. It must be borne in mind in this connection that the amounts shown by the rain smears here figured are the totals for the whole time of the passage of the

¹ Mill, H. R., "On the Unsymmetrical Distribution of Rainfall About the Path of a Barometric Depression Crossing the British Isles." Rep. of Int. Geog. Congress, Washington, 1904, p. 393.

² Loomis, E., "Contributions to Meteorology" (revised). Memoirs Nat. Acad. Sci., vol. 3, pt. 2, pp. 41-42, Washington, 1886.

cyclones and that in the case of heavy rain falling to the westward of the center of the cyclone there are tendencies at work, those which cause the general eastward drift of these whirls, to prevent the movement of the center backward toward these rain areas.

Cases where the areas of heavy precipitation are found at a considerable distance from the track of the cyclone are by no means uncommon. Figures 6, 10, Atlantic coast rainfall, and 7 are examples of this condition. In the case shown in figure 7 it is possible that the heavy rainfall is nearer the track in eastern Canada for which the rainfall is not shown in the figure, but there is a considerable area of heavy precipitation in the United States at some distance from the track. Figure 4 shows a considerable area of very heavy rainfall located far from the track; but in this case thunderstorm rains are responsible in some degree, and it is not, therefore, a

typical case.
In cases where the heavy rainfall occurs on the track or near it we should not expect to find the rain area symmetrical with respect to the track. There should be a greater part of the area of heavy rainfall on the side of the track toward large water bodies or the side from which the rainy winds come. Mill has shown that this is the left of the track for the British Isles. In the eastern United States the great supply of water, the Atlantic Ocean, lies to the right of most of the tracks and we should expect to find the areas of heaviest precipitation on that side. That this is often the case has been shown by the examination of the smear maps. Examples of smears which show the heavier rainfall to the right of the track are given in figures 3, in the area west of the Rocky Mountains, where the water supply is the Pacific Ocean; 6, although in this case only half the record is shown, the rainfall for Canada not appearing; 7; 10, precipitation along the Atlantic coast; and 11.

The Great Lakes present such an important region of abundant water that their influence should appear in the case of the smears of cyclones whose tracks lie near them. Their influence will simply strengthen that of the Atlantic Ocean in those cases where the tracks lie to the north of the Lakes. But when the track is south of the Lakes we should expect to find their influence shown by the location of areas of heavy rainfall to the left of the track. That this is the case is shown by such smears as those shown in figures 2, although here there is also the influence of the cyclone passing on the northern track which is perhaps responsible for all the precipitation in the Lake region; 3, if the rain area is not so far away from the Lakes that the influence of the Mississippi must be responsible for it; 4; 8, rain area is not far from symmetrical, but there is a suggestion of larger and heavier fall to the left of the track—this is the only case studied where there was an approach to symmetry; 9; and 10, rainfall in Michigan is to the left of the track.

The maps selected for the accompanying figures are

typical of all the maps drawn. They seem to show every relation possible between the rain areas and the storm tracks and between the rain areas and the important water bodies. Every relation expected occurs, but there seems to be as yet no classification which will reduce the relations to a system. Although a large number of maps were drawn the conclusions which can safely be drawn are few. The rain areas may best be described as "patchy," the areas of heavy rain being for the most part scattered. Most of the smears show several areas of heavy rainfall rather than one connected area, but in the best-defined cyclones there seems to be a tendency to

rather wide areas of heavy fall. The "patches" of heavier fall are usually connected by areas of lighter fall and are, for the most part, not separated by regions without rain. The smears bear a rather close relation to the important bodies of water; but just what this relation is

has not, as yet, been determined.

The writer feels confident that a larger number of stations would show even greater variations in the areas of heavy rainfall, as this variation is now the most striking in that part of the country where there are now the most stations per unit area. The study of rain smears, made from maps on which the rainfall data for selected cyclones from all the regular and cooperative stations of the Weather Bureau have been plotted, is certain to lead to valuable results in advancing the knowledge of the cyclonic relations in the distribution of our most important weather element. The amount of work is large but the results will surely justify the undertaking, if the cyclones are carefully selected by a preliminary study of the daily weather maps.

The relation between the heaviest rainfall and the movement of the cyclones has been referred to on page 14. This relation does not come out directly from the study of the smears. If the amounts shown by the first weather map after the beginning of the cyclone are plotted and maps for the cumulative amounts are made from each weather map during the passage of the cyclone, it is probable that the suggestion that the center tends to move toward the area of heaviest precipitation can be tested. This, however, involves a study, which, although of great value, is not the same as the study of the smears; but it could be carried on to advantage with the study of rain smears. The two studies would probably be of considerable help to each other. There are probably other relations which will appear from a study of maps of cumulative amounts of precipitation daily from each important cyclone which do not come out from the study of the smears alone.

When the smears are studied in connection with the monthly and weekly rainfall maps and the maps of the departures from the means, the effect of a single important cyclone may be seen. The smear from a single cyclone is, of course, sufficient to strongly influence the whole distribution of rainfall in a week; and a heavy smear may show strongly on the rainfall map for the month,

especially if it is in an unusual position.

Maps of the smears of our more important cyclones will greatly increase our knowledge of the rainfall relations of the United States. Rain smear maps can never replace the monthly and annual maps and will probably never wholly supersede the weekly maps of the crop season, because these maps include all rains some of which are noncyclonic and some, while cyclonic, are not closely enough related to particular cyclones to be plotted as smears. It is probable that over a large part of the country the greater part of the precipitation is the result of well-defined cyclones and the rain smears of these cyclones will show the rainfall relations much more nearly as it actually occurs than does the present method of monthly amounts, where the individual cases are covered and obscured in the means. When the study of rainfall in the United States reaches the point it has obtained in Great Britain through the efforts of the British Rainfall Organization, maps of rain smears, or something equiva-lent and accomplishing the same purpose, will become an essential part of the discussion of the rainfall relations for the greater part of the country where the cyclonic unit is the controlling factor in the weather.

¹ Mill, H. R., "Map Studies of Rainfall," Quart. Jour. Roy. Met. Soc., vol. 34, pp. 65-86, 1908.
"On the Unsymmetrical Distribution of Rainfall About the Path of a Barometric Depression Crossing the British Isles," Rep. 8 Int. Geog. Congress, Washington, 1904, pp. 393-396.



Fig. 1.—Movement of the center of lowest pressure over the Mountain and Basin Regions, Apr. 25 to 28, 1911; and the position of the center of the cyclone developed in Colorado, Apr. 28, 1911.

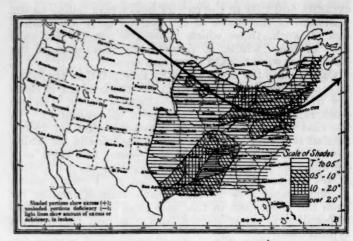


Fig. 4.—Path of a cyclone, Apr. 16-22, 1911, entering the United States from Canada already formed. Heavy precipitation on and to the left of the track. Heavy rainfall in the Gulf and lower Mississippi Valley regions due in part to thunderstorm rains.

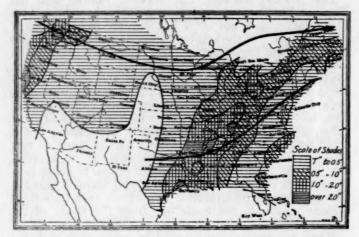


Fig. 2.—Path of a cyclone Feb. 22-Mar. 1, 1910, from the Pacific Ocean to the Gulf of St. Lawrence on a northern track. Precipitation from this cyclone in the Pacific northwest and in the Great Lakes region. Heavy precipitation in the Gulf, Mississippi Valley, and Lake regions from a second cyclone on a more southern track. Heavy precipitation from this second cyclone is on and to the left of the track.

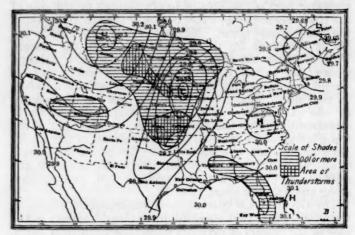


Fig. 5.—Typical case of thunderstorm rains included in the general rain area of a cyclone, July 23, 1911, pressure at 8 a. m., 75th meridian time, rainfall for the past 24 hours.

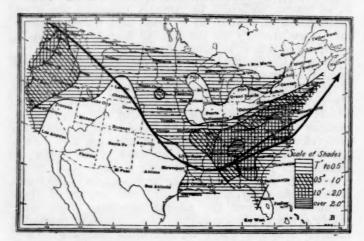


Fig. 3.—Path of a cyclone, Dec. 1-7, 1910, from the Pacific coast to Nova Scotia, on a southern track. Heavy precipitation west of the Rocky Mountains to the right of the track; east of the Rocky Mountains to the left of the track.

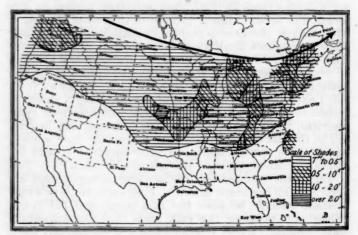


Fig. 6.—Areas of heavier precipitation much broken by areas of lighter rainfall. Cyclone track wholly in Canada. Heavier rainfall probably to the right of the track. Period, May 23 to June 3, 1910.

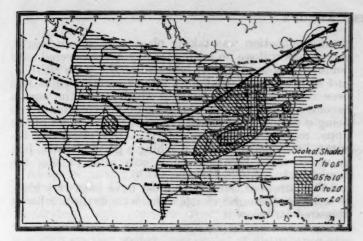
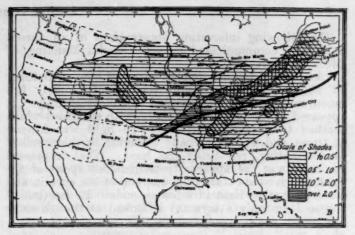


Fig. 7.—Cyclone of Jan. 16-19, 1910, on a central track. Heavy precipitation to the right of the track. Mississippi River and Lake influence on rainfall.



Fro. 9.—Cyclone, Apr. 30-May 5, 1910, on a central track. Heavy precipitation on and to the left of the track. Mississippi River and Lake influence on rainfall.

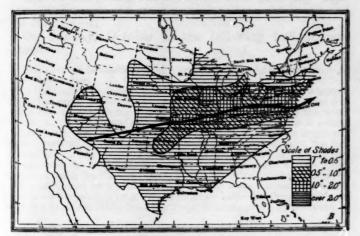


Fig. 8.—Cyclone, Jan. 1–16, 1911, on a central track. Heavy precipitation on the track. Mississippi River, Lake, and Atlantic Ocean influence on rainfall.

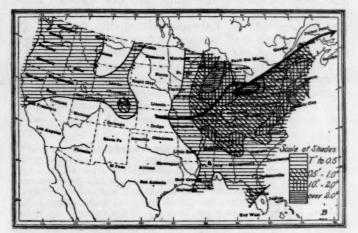


Fig. 10.—Areas of precipitation completely separated by areas of no rain. Lake and Atlantic Ocean and slight Pacific Ocean influence on rainfall. Track between two areas of heavy rainfall. Period, Apr. 19-28, 1910.

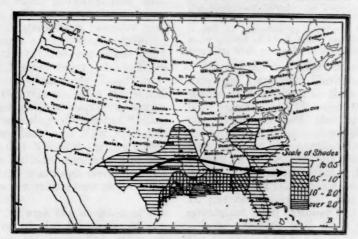


Fig. 11.—Cyclone, Mar. 22-24, 1911, on a southern track. Gulf and Atlantic Ocean influence on rainfall. Heavy rainfall to the right of the track.

A NOTEWORTHY AURORA.

The following interesting observations of an aurora have been communicated by Mr. Douglas Manning, of Black River, N. Y.:

"A beautiful auroral display occurred here on October 10, about a half hour before the rise of a nearly full moon, which of course drowned it almost entirely. It appeared in the form of a drapery, with streamers which reached to a point overhead. The light was intense at times, and was continually changing in color, yellow predominating, red being the least. What impressed me most was the apparently tremendous speed of the light, which would start from one end of the curtain and reach the other limit in a few seconds. To me (but of course I am only a layman) it looked as though some

great combustion was taking place at a certain height, just as one will see on a summer day a sky covered with cumulus clouds with their bases all at the same altitude; just so it appeared that only after a certain height had been reached did the elements which cause the aurora become visible. As the phenomenon is explained by its being a discharge of electricity in the rarified air of the upper regions, is it not possible that this electricity becomes luminous only after reaching a great altitude, just as water vapor becomes visible only after passing the dew point?

dew point?

"The aurora of October 10 must have been very high, as some alto-cumulus clouds which were in the northwest appeared far below it."

WEATHER, FORECASTS AND WARNINGS, OCTOBER, 1911.

By H. C. Frankenfield, Professor of Meteorology.

At the beginning of the month a severe storm had just passed out the Gulf of St. Lawrence, and another had reached the upper Mississippi Valley, with a ridge of moderately high pressure over the Atlantic States. Over the western half of the country pressure was also low with another well-defined center of disturbance over Idaho. General rains had fallen over the northern half of the country and temperatures were generally high, abnormally so in the great central valleys, the South and the Southwest.

On Sunday, October 1, the following bulletin was

There are no indications at the present writing of a disturbance in the West Indies

the West Indies.

In the United States the coming week will be one of rapid temperature changes in northern and moderate temperature in southern districts and on the Pacific coast. The precipitation during the week will be above the normal except on the Gulf and South Atlantic coasts.

Low barometric pressure over the western districts at the beginning of the week will result in unsettled weather and general rains the first part of the week in practically all districts east of the Rocky Mountains; it will cross the Rocky Mountains Monday, the Central Valleys Tuesday, and reach the Eastern States about Wednesday. This disturbance will be followed by a pronounced change to lower temperature which will in all probability be attended by frosts in the Northwestern States and the Northern States from the upper Mississippi Valley eastward.

Subsequent conditions were substantially in accordance with the forecast. Three pronounced storms moved rapidly across the northern portion of the country, attended by general rains and rising temperatures, with moderately high pressure and falling temperatures intervening, until at the end of the week high pressure prevailed with fair weather except on the south Atlantic coast where the remnants of the third storm of the week persisted, and on the north Pacific coast where there were indications of the approach of another disturbance. The frosts were confined to the regions from the Great Lakes eastward and to the central and northern Rocky Mountain districts. On the morning of October 8 they were heavy to killing in New York and New England. High winds occurred on October 3 and 4 on the Great Lakes and on the latter date in New England and the middle Atlantic States. Storm warnings were ordered at the proper time, and only a few minor casualties without loss of life were reported.

Special features in connection with the weather of the week were (1) the occurrence of the first rain of the autumn season in California; (2) torrential rains on October 4 and 5 over western Colorado and northern New Mexico, accompanying the third storm of the week, and resulting in floods in all rivers and great damage of the character incident to such occurrences. Some loss of life was reported, and the damage to property is said to have amounted to about \$5,000,000, a large part of which fell upon the railroads; (3) similar heavy rains from the same storm on October 5 and 6 over Wisconsin and eastern Minnesota. Heavy rains had fallen earlier in the week, and a great volume of water had accumulated behind the

two dams of the La Crosse Water Power Co. at Hatfield, Wis. This volume was largely increased by the later rains, and, while the dams withstood the pressure, the embankments at the sides gave way, releasing the water above the dams. This rushed down Black River and practically obliterated the town of Black River Falls, Wis., and did great damage to other towns along the river. Much damage was also done along the Chippewa and other rivers, the farmers and railroads suffering severely; (4) the first substantial snowfall of the season over northern New York and portions of New England.

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During this week the weather over the Southern States continued fair and abnormally warm until October 8, when the high pressure area to the northward brought a decided fall in temperature with increasing cloudiness and some local showers.

On Sunday, October 8, the following bulletin was

There are no indications at the present time of a disturbance in the Gulf of Mexico or the Caribbean Sea. A barometric depression appears some distance south of Bermuda, but it is probable that it will move

north-northeast and not reach the Atlantic coast.

The indications are that the unusual atmospheric activity in the United States which prevailed during the last two weeks will be succeeded the coming week by a normal progression of high and low pressure areas across the country. The disturbances wil! in all probability move in high latitudes and hence the rainfall during the week will be

move in high latitudes and hence the rainfall during the week will be generally light, except in the Pacific States, where rains will be frequent. The temperature during the week will be normal for the season generally. The next disturbance to cross the country will appear in the Northwest Monday or Tuesday, cross the Middle West Tuesday or Wednesday, and reach the St. Lawrence Valley about Thursday; it will be preceded by a general rise in temperature, attended by a short period of local rains, and be followed by a change to colder weather, with probable frosts in the northern half of the country.

During the second week of the month pressure was low over the Canadian Maritime Provinces, but high elsewhere east of the ninetieth meridian, except along the Gulf coast, until October 14, when a disturbance from the West reached the upper Mississippi Valley. A moderate depression along the Gulf coast with the strong high area to the northeastward caused rains to set in during October 9 in the Ohio Valley and the Southern States, and during October 10 and 11 the rains extended into the lower lake region and the Middle Atlantic States. In the South Atlantic and east Gulf States the rains continued until October 12.

Low pressure had been persistent over Alaska since the beginning of the month, and during October 7 a disturbance appeared off the extreme north Pacific coast. It moved southeastward to Utah with increasing energy, and then turned sharply northeastward, diminishing slowly and disappearing during the night of October 10 over Saskatchewan. The precipitation from this disturbance covered the north Pacific States, Idaho, Utah, and the western portions of Wyoming and Montana. During the night of October 10-11 a severe snowstorm, accompanied by high winds, set in over southwestern Montana. The storm appears to have been most severe

in the vicinity of Butte, where it is said 2 feet of snow fell, and considerable damage was done, particularly to telegraph, telephone, and power lines. A moderately strong high area followed this disturbance, but it dissipated over the Rocky Mountains on October 13, by which time depressions had appeared over North Dakota and eastern Texas. Rain had been falling over the latter district since October 9, but it ended with the disappearance of the disturbance during the night of October 13-14. The northern disturbance drifted slowly eastward, assuming definite formation during the night of October 13-14, and was attended by rains from the Missouri Valley eastward, reaching the Atlantic coast October 15. During the evening of October 14, while the center of disturbance was over Wisconsin, severe local storms occurred over southeastern Illinois and southwestern Indiana, and considerable damage was done.

Another offshoot from the Alaska low reached the north Pacific coast on October 13, and moved eastward over the British Northwest, reaching Manitoba on the following day and disappearing. There was no rain resulting except in the north Pacific States. At the same time another disturbance developed over the eastern slope of the central Rocky Mountains, and by the morning of October 15 it had reached northeastern Kansas with well-defined formation, but practically without precipitation. A high area followed, appearing

on the Oregon coast during October 13.

Northeast storm warnings were ordered late in the afternoon of October 12 from Norfolk, Va., to Boston, Mass. A disturbance was apparently moving up the coast, some distance off shore, and while high wind velocities were not recorded at stations, strong winds

prevailed seaward.

Temperatures were moderate as a rule, except in the South, where they continued high for the season. There were no frosts of consequence, except in the cranberry bogs of Massachusetts and New Jersey on the morning of October 14, for which warnings were ordered on the preceding day.

On Sunday, October 15, the following bulletin was

issued:

There are no indications at the present time of a disturbance in the

Gulf of Mexico or the West Indies.

In the United States the coming week will be one of rapid temperature changes over the northern half and moderate temperature in the southern half of the country. The precipitation during the week will probably be above the normal in the north Pacific States, below the

normal in the Southern States, and near or above the normal elsewhere.

A disturbance that was over the Plains States Sunday will advance to the lake region Monday and move thence to the Northeastern States by Monday night or Tuesday; it will be attended by rains over the Middle and Northern States east of the Mississippi River, and probably by high winds on the Great Lakes; it will be followed by considerably cooler weather over the interior districts east of the Rocky Mountains, with probable frost Monday morning in the Rocky Mountain region and Tuesday in the Plains States and the upper Mississippi Valley and the lake region.

The next disturbance to cross the country will appear on the north Pacific coast Monday or Tuesday, cross the Middle West about Wednesday, and reach the Eastern States about Thursday or Friday; it will be preceded by a general rise in temperature, be attended by considerable precipitation, and be followed by cooler weather, which

will appear in the Northwest Wednesday

The disturbance that was central over Kansas on the morning of October 15 moved northeastward over Lake Superior passing beyond the field of observation during the following day. Pressure fell considerably to the eastward and southeastward, and a slight secondary disturbance appeared over the east Gulf States. As a result rains occurred generally over the central valleys, the Lake region, and the South, extending into the Middle Atlantic States and New England during October 17,

when a trough of low pressure extended from Ontario southward through the South Atlantic States, and pressure was generally low to the westward with another moderate disturbance over eastern Colorado. At the same time a strong high area had formed over the Canadian Maritime This high area remained stationary for 5 days Provinces. with relatively low pressure persisting to the southward and southwestward, and the resulting northerly and easterly winds were accompanied by rains that continued over New England and the Middle Atlantic States until the night of Sunday, October 22. During the 24 hours ending at 8 a. m., October 17, the rainfall was very heavy in interior Alabama and along the southern Appalachians, necessitating flood warnings on October 19 for the Santee River of South Carolina. On October 18 the heavy-rain area covered the Middle Atlantic States and the upper Ohio Valley, and during the following night it extended into southwestern New England, Hartford, Conn., reporting 4.62 inches of rain in 24 hours.

The Colorado disturbance of October 17 moved eastward, practically without precipitation, and disappeared in the middle Mississippi Valley during the night of October 18-19, by which time the second high area of the week had reached the central Rocky Mountain Region, the first one having dissipated over the Middle Plateau a day or two before. The second high area was attended by snows on October 18 and 19 in Wyoming and central and eastern Colorado, and by cold weather that extended slowly eastward, reaching the Mississippi Valley on the morning of October 22, by which time temperatures in the Northwest had risen materially. Killing frosts occurred on several days in the Missouri and the upper Mississippi Valleys and the Southwest, for all of which warnings were issued on the days previous to their occurrence. On the morning of October 22 warnings were issued for frosts on

the following morning in the east Gulf States.

West of the Rocky Mountains the weather was generally clear during the week, with comparatively low temperatures over the interior districts. Storm warnings were ordered on Lakes Michigan and Superior on October 15 for the storm that at that time was over Kansas, and moderately high winds occurred during the next 24 hours. On October 16 warnings were also ordered for Lakes Huron, Erie, and Ontario, but as the Kansas disturbance moved almost due northward after reaching Iowa, no high winds were reported. During October 17 there was a sharp fall in pressure over the South Atlantic States, and as pressure was high to the northeastward high easterly winds were anticipated, and in the evening warnings were ordered for the southern New England and the middle Atlantic coasts. High winds occurred as forecast on the Long Island and New Jersey coasts.

On Sunday, October 22, the following bulletin was issued:

There are no indications at the present time of a disturbance in the Gulf of Mexico or the West Indies. An area of low barometric pressure of great magnitude over the British Isles will move eastward and cause stormy weather over Europe during the next several days.

stormy weather over Europe during the next several days.

In the United States the temperature during the week will average low for the season over practically all districts from the Rocky Mountains to the Atlantic coast, and there will be frosts on Monday in the interior of the Gulf States and in the Ohio Valley and by Tuesday or Wednesday in the Middle Atlantic and elevated regions in the South Atlantic States. The precipitation for the week will be below the normal generally. There will be rain or snow Monday in the region of the Great Lakes and rain Monday and probably Monday night in the Middle Atlantic and New England States, followed by a change to colder weather in those districts Tuesday. The next general disturbance to cross the country will appear in the Northwest Tuesday or Wednesday, advance eastward over the Middle West Wednesday night or Thursday and the Eastern States about Friday; this disturbance or Thursday and the Eastern States about Friday; this disturbance will be preceded by rising temperature attended by local areas of precipitation, and be followed by a change to considerably colder weather.

At the beginning of the week pressure was low from the Lake region eastward and high over the Canadian Maritime Provinces, and rain had been falling generally for 2 days over the Atlantic States and the Lake region. In the Gulf States and the Southwest pressure was high with comparatively low temperatures and light frosts. The weather cleared in the East on Monday, October 23, with rapidly rising pressure, and on the morning of October 24 marked high pressure prevailed from the Mississippi Valley eastward, except in New England, with heavy to killing frosts in the Ohio and middle Mississippi Valleys and Tennessee and light frosts in the interior of Virginia and North Carolina. During the remainder of the week pressure continued generally high with comparatively low temperatures, except in Florida and along the Gulf of Mexico. There was no precipitation of consequence over the interior districts, except in the central Rocky Mountain region and the extreme Southwest, where there were general snows and rains, lasting from Thursday, October 26, to Saturday, October 28, inclusive. These snows and rains were due to a pressure distribution that causes precipitation in that vicinity, low over the Southern Plateau and high along the eastern slope of the Rocky Mountains. Over the middle and northern districts west of the Rocky Mountains the weather was fair and cool throughout the week, with frosts in the northern coast States during the latter half.

Storm warnings were ordered on Lakes Ontario, Erie, St. Clair, and southern Huron on the morning of October 23 for the disturbance that at that time was over Lake Michigan, and high westerly winds occurred during the following afternoon and night.

On the morning of Monday, October 23, a decided pressure fall over the West Indies indicated the presence of a disturbance in the Caribbean Sea not far from Porto Rico and Santo Domingo. The usual advices were at once telegraphed and special observations called for at frequent intervals. The disturbance was of small diameter and moved slowly west-northwestward, passing south of and near Habana, Cuba, early on the morning of Friday, October 27, and moving into the Gulf of Mexico during the day. The meteorological office at Habana reported a rough sea at Puerto Plata, Santo Domingo, on October 23, and a moderately high wind of 44 miles an hour from the southeast at Habana as the storm center passed that point, but nothing of special importance was reported from any land station. However, excellent wireless reports were received from various vessels each day, and these afforded the only really accurate information as to the probable location of the storm center until it appeared over northwestern Cuba.

The high pressure that prevailed over the interior of the United States prevented the recurving of the storm over Florida, and it continued its west-northwest movement into the Gulf of Mexico. On the morning of Thursday, October 26, northeast storm warnings were ordered displayed on the south Florida coast, and at 3 p. m. of the same day hurricane warnings were ordered from Tampa to West Palm Beach, Fla. On the following morning, when it was apparent that the disturbance had passed into the Gulf, the warnings were lowered. The disturbance apparently lingered in the southern Gulf of Mexico, as barometric conditions continued unsettled over western Cuba and southern Florida for several days after October 27, and on Tuesday, October 31, there were strong indications that the storm had recurved and was approaching the northwest coast of Florida. Storm warnings were ordered from Norfolk, Va., to Jacksonville, Fla., and by night the storm center was over northern Florida. It still retained its moderate character and

passed northeastward over the Atlantic Ocean during the night with decreasing intensity. Only moderately high winds occurred, and light winds only were recorded north of Savannah, Ga., or south of Jacksonville, Fla.

On Sunday, October 29, the following bulletin was issued:

No abnormal weather conditions are probable during the next several days in any part of the country, and the indications are that the coming week will be one of seasonal temperature and generally fair weather in the United States. The next disturbance to cross the country will appear in the far West about Tuesday, advance thence in an easterly course and reach the Great Central Valleys Wednesday or Thursday and the Eastern States about Friday; it will be attended by a short period of unsettled weather and precipitation and be followed by colder weather over the northern half of the country.

The week opened with a moderate and narrow low pressure area extending from Arkansas northward through Iowa, attended by rains in that section and the upper Mississippi and lower Ohio Valleys. At the same time an extensive high area appeared over the Northwest. The low area moved northeastward to eastern New York and disappeared during the night of October 31, by which time the rain area had extended through the Lake region, the middle Atlantic States, and New England, with some snow over the extreme northern districts. Pressure had also been moderately low over southern Texas and heavy rains fell over that section during Monday, October 30.

The high area over the Northwest continued to increase in magnitude and at the end of the month it was central over eastern Montana, accompanied by very low temperatures that promised to spread rapidly to the eastward and southward.

In the Icelandic area barometric pressure was continuously above normal from October 1 to 20, and from October 22 to 25, inclusive. Depressions occurred on October 2, 6, 10, 21, 26, and 30, the one on the last-named date being the most marked. The most important crests occurred on October 3-4 and 8. The depression noted over Iceland on October 21 passed over the British Isles on the night of that date causing severe gales. A storm occurred during the afternoon and night of October 1 over the North Sea, in which a number of small craft and about 240 lives were lost. Barometric fluctuations and storm movement over Iceland during the month were relatively feeble, and the same fact is to be noted in connection with storms that occurred in the United States. In the Azores pressure was above normal from October 4 to 10, inclusive, on October 14, and from October 23 to 31, inclusive, and was low or below normal on October 2, 12, 16-17, 20, 26-27, and 30. Over Siberia pressure was relatively high during the first 7 or 8 days of the month; it was low from October 8 to 15, inclusive, high during October 16 and 17, low from October 18 to 26, inclusive, and above normal after the latter date to the end of the month. At Honolulu pressure was below normal on October 1-2, 7, 11, 14-15, 19, 24-25, and 30, the most important depression being that of October 24-25. Pressure was high on October 4, 9, 12, 22, 27, and 28. In Alaska pressure was generally below normal during the first half of the month, while during the latter half it was above. Depressions occurred during October 4-5, 9-11, inclusive, 14-16, inclusive, 19-20, 22-23, 27 and 28, while crests occurred on October 1, 7, 12-13, 17-18, 21, 25 to 27, and 29 to 31, inclusive. On October 5, a tidal wave struck the western coast of the State of Sonora, Mexico, causing the almost total destruction of several small towns, besides loss to shipping in the Gulf of California. It was followed by a storm of hurricane intensity which lasted several days. The wind is reported to have attained a velocity of 90 miles an hour.

Average temperatures and departures from the normal.

Districts.	Number of sta- tions.	Average tempera- tures for the current month.	Departures for the current month.	Accumu- iated de- partures since Jan. 1.	Average depar- tures since Jan. 1,
New England	12	50.2	-0.2	+ 3.7	+0.4
Middle Atlantic	15	55.9	+0.5	+10.0	+1.0
South Atlantic	10	67.4	+3.8	+21.4	+2.1
Florida Peninsula 1		78.1	+4.8	+17.6	+1.8
East Gulf		70.1	+4.6	+29.6	+3.0
West Gulf	10	66.9	+4.6	+33.4	+3.1
Ohio Valley and Tennessee		58.9	+1.9	+23.3	+2.1
Lower Lakes		50.7	-0.9	+12.0	+1.2
Upper Lakes	12	47.3	-0.4	+20.8	+2.1
North Dakota 1	9	42.6	-0.6	- 2.1	-0.2
Upper Mississippi Valley		51.5	-1.4	+23.0	+2.8
Missouri Valley	13	51.5	-1.5	+29.0	+2.9
Northern slope	9	42.6	-2.1	+ 0.9	+0.1
Middle slope		53.6	-2.0	+26.4	+2.6
Southern slope 1		62.7	+0.4	+31.9	+3.2
Southern Plateau 1		58.8	-0.8	+ 0.9	+0.1
Middle Plateau 1		46.8	-2.1	+ 2.3	+0.2
Northern Plateau 1		46.4	-1.8	- 7.2	-0.7
North Pacific		51.6	+0.5	-10.3	-1.0
Middle Pacific	5	59.4	-0.1	-13.4	-1.3
South Pacific	4	63.6	+1.2	- 0.2	0.0

¹ Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

		Ave	rage.	Depa	rture.
Districts.	Number of sta- tions.	Current month.	Percent- age of normal.	Current month.	Accumu- lated since. Jan. 1.
New England	11	3, 66	+0.10	103	- 4.20
Middle Atlantic		3.82	+0.60	119	- 4.80
South Atlantic	11	4.72	+0.80	120	-14.90
Florida Peninsula 1	9	4. 45	+0.20	105	-12.90
East Gulf	11	3.96	+1.20	143	- 5, 20
West Gulf	10	2.05	-1.50	58	- 6.60
Ohio Valley and Tennessee	13	3.75	+1.20	108	- 0,60
Lower Lakes	9	3.72	+0.80	127	+ 0.60
Upper Lakes	13	3.98	+1.20	143	+ 0.50
North Dakota 1	9	1.18	+0.10	109	+ 0.90
Upper Mississippi Valley	15	3.15	+0.70	129	+ 0.20
Missouri Valley	12	2.81	+0.90	147	- 4.30
Northern slope	9	1.41	+0.50	155	- 0.70
Middle slope		0.77	-0.80	49	- 3.70
Southern slope 1	8	1.26	-0.70	64	- 5.50
Southern Plateau 1	9	1.73	+1.00	237	+ 3.60
Middle Plateau1		1.36	+0.40	142	+ 1.20
Northern Plateau 1	10	1.48	+0.20	116	- 2.10
North Pacific	7	1.48	-2.50	37	+ 5.20
Middle Pacific	7	0.60	-0.90	38	+ 2.20
South Pacific	4	0.16	-0.60	21	+ 6.90

¹ Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departure from the normal.

Districts.	Average.	Depar- ture from normal.	Districts.	Average.	Depar- ture from normal.
New England Middle Atlantic. South Atlantic Florida Peninsula East Gulf. West Gulf Ohio Valley and Tennessee Lower Lakes Upper Lakes North Dakota Upper Missisippi Valley.	80 80 83 81 79 74 80 79 81 80	+1 +4 +5 +5 +1 +6 +2 +9 +6 +3 +8 +8	Missouri Valley Northern Slope Middle Slope Southern Slope Southern Plateau Middle Plateau Northern Plateau North Pacific Middle Pacific South Pacific	78 72 66 65 54 52 57 82 67 64	+11 +12 +7 +2 +12 +3 -6 +2 -3 -6

Average cloudiness and departure from the normal.

Districts.	Average.	Depar- ture from normal.	Districts.	Average.	Depar- ture from normal.
New England	6.1	+0.7	Missouri Valley	5.7	+1.6
Middle Atlantic		+1.1	Northern Slope	4.6	+0.2
South Atlantic		+1.6	Middle Slope	4.6	+1.2
Florida Peninsula		+0.2	Southern Slope	4.2	-0.4
East Gulf	5.1	+1.2	Southern Plateau	2.5	+0.3
West Gulf	4.7	+1.0	Middle Plateau		-0.1
Ohio Valley and			Northern Plateau		-0.6
Tennessee	6.0	+1.6	North Pacific		0.1
Lower Lakes	6.1	+0.2	Middle Pacific	3.3	-0.5
Upper Lakes	6.9	+0.9	South Pacific	2.4	-0.7
North Dakota Upper Mississippi	5.8	+0.6			
Valley	6.2	+1.6			

Maximum wind velocities.

Stations.	Date.	Veloc- ity.	Direc-	Stations.	Date.	Veloc- ity.	Direction.
Bismarck, N. Dak.	3	56	w.	Nantucket, Mass	2	58	nw.
Buffalo, N. Y	4	64	SW.	New York, N. Y	5	54	nw.
Do	22	60	w.	Do	18	50	se.
Do	23	60	W.	North Head, Wash	8	74	se.
Do	24	56	w.	Do	13	62	8.
Cleveland, Ohio	4	54	nw.	Pierre, S. Dak	3	54	W.
Detroit, Mich	4	53	W.	Pittsburgh, Pa	4	50	nw.
Independence, Cal.	9	50	80.	Point Reyes Light,			
Modena, Utah	9	50	SW.	Cal	4	58	nw.
Mount Tamalpais,				Do	9	53	nw.
Cal	25	58	nw.	Do	25	67	nw.
Do	26	62	nw.	Do	26	54	nw.
Mount Weather,				Toledo, Ohio	4	53	sw.
Va	5	52	nw.				W. L.

RIVERS AND FLOODS, OCTOBER, 1911.

By H. C. FRANKENFIELD, Professor in Charge River and Flood Division.

As a rule the month of October is one of comparative immunity from floods, but during the present month there were two that, occurring at any time of the year, could be considered as great floods. Both took place during the early days of the month, one in the rivers of Wisconsin, and the other in western Colorado and northwestern New Mexico. The floods in Wisconsin were the highest for 30 years, with the single exception of the year 1900, while the Rocky Mountain floods were beyond all records and traditions.

The losses from the Wisconsin floods amounted to between \$2,500,000 and \$3,000,000, about 80 per cent of which occurred in the Black River Valley. In the city of Black River Falls, Wis., alone, the damage amounted to \$1,500,000, according to the estimate of the city council.

The losses from the Rocky Mountain floods amounted to about \$1,000,000, of which not less than one-half fell upon the railroads. Detailed accounts of the floods will be found in the district reports in this Review.

Warnings for the Wisconsin floods were issued as soon as the water began to rise, and were repeated frequently until all danger was over. They were of great benefit to all concerned and were the subject of much commendation from the press and business interests generally. It is estimated that property to the value of \$300,000 was saved by the warnings along the Wisconsin River.

No flood warning service is maintained in southwestern Colorado and northwestern New Mexico.

The flood waters from the Wisconsin rivers also caused a marked rise in the upper Mississippi River, although flood stages were not reached. The river was higher than at any time since July, 1908, and the damage to crops in lowlands amounted to perhaps \$100,000, a like amount being saved, however, by the timely warnings furnished.

The southwestern Colorado and northwestern New Mexico flood waters were carried into the Colorado River and the Rio Grande, causing in both marked rises that were correctly and promptly forecast. Flood stages were exceeded in the Rio Grande from below Espanola, N. Mex., to some distance south of El Paso, Tex., and in

the Colorado River at Topock, Ariz.

There was a second flood in the Wisconsin River, beginning on October 17. It was not of great importance, but owing to the weakened condition of the levees, dams, etc., warnings were issued. These were of a reassuring character and stated that the stage of water would not be as high as that of the preceding week.

Considerable inconvenience resulted, but without actual

Heavy rains on September 25, 27, 28, and October 1, resulted in floods in the north and south Fabius Rivers, and in the North and South Rivers in the vicinity of Hannibal, Mo., causing crop damage to the amount of about \$10,000. The general conditions that caused these floods extended eastward over the Ohio Valley, causing flood stages in the Illinois and some of the smaller rivers, but without damage of consequence, except along the Mahoning and Beaver Rivers. The Allegheny River was also quite high. Along the Beaver and Mahoning Rivers and their tributaries many bridges were washed away and several dams were broken. The damage was about as follows:

Property, excluding crops		
Crops Damage to farms land		
Total		555 000

Value of property saved through Weather Bureau warnings, about \$50,000. Warnings were issued as soon as the reports of heavy rainfall were received, and they proved to be of much value to contractors engaged in hydraulic work.

There were minor floods of short duration in some of the rivers of South Carolina and eastern Georgia during the third decade of the month. Warnings were issued at the proper time and no damage was reported:

The heavy rains of October 18 over New England caused a rapid rise in the lower Connecticut River, and the flood stage of 16 feet was reached at Hartford, Conn., at 10 a. m., October 20. A large quantity of drift was brought down and a number of boats were torn from their moorings. The actual damage, however, was small.

Nothing of consequence occurred in the Missouri, the lower Mississippi, and the Ohio Rivers, except that the stages averaged somewhat higher than is usual for the time of the year. The rivers of the Pacific States were at the usual stages for the season.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Anonymous publications are indicated by a

Australia. Commonwealth bureau of meteorology.

Average rainfall map and isohyets of Victoria. [Melbourne. 1911.] sheet 34 x 45½ cm.

Rainfall map of Australia [and Tasmania] for the year 1910. [Melbourne. 1911.] sheet 34 x 62 cm.

Austria-Hungary. Central-Anstalt für Meteorologie und Erdmag-

netismus. Jahrbuch, 1909. Wien. 1911. var. pag. fo.

Bates, Carlos G.

Windbreaks: their influence and value. Washington. 1911.

100 p. 8°. (U. S. Forest service. Bull. 86.)

Bavaria. Königl. Versicherungskammer.

Die bayerischen öffentlichen Landesanstalten für Brand-, Hagel-, und Vieh-Versicherung. Denkschrift. [München. 1899.] viii, 131 p. f°. [Deals with the history of hail insurance in Bavaria.]

Bölte, H. Die bisherige Entwickelung der Hochwasservorhersage für die Elbe. Berlin. 1910. 25 p. 8 pl. f°.

Classen, Johann.

Gang und Einfluss des Passats und Antipassats im atlantischen

Gebiete Südamerikas. Bonn. 1910. 126 p. 8°. (Diss.-Bonn.) Clongowes Wood college, Ireland. Results of meteorological observations, 1910. Sallins. [1911.] 4°.

Cook, O. F.

Relation of drought to weevil resistance in cotton. Washington.
1911. 30 p. 8°. (U. S. Bur. plant indus. Bull. 220.)

Deutsche Meteorologische Gesellschaft. Berliner Zweigverein.
Jahresbericht, 1910. Berlin. 1911. 21 p. 8°.

Studie über Licht und Luft des Hochgebirges . . . Braunschweig. 1911. viii, 153 p. f°. (A study of the photochemical climate of Davos, Switzerland.)

Engeler, Emil.

Periodische und unperiodische Temperaturschwankungen der Benguela-Strömung. Berlin. 1910. 34 p. 4 pl. 4°. (Diss.-

Germany. Reichs-Marine-Amt.

Forschungsreise S. M. S. "Planet," 1906–1907. Band 2.—Aerologie. Berlin. 1909. 124 p. maps. diagrs. f°.

logie. Berlin. 1909. 124 p. maps. diagrs. f°.

Hellpach, Willy.

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C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. These titles are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Unsigned articles are indicated by a Bureau.

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CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest

and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

Temperature and precipitation, by sections, October, 1911.

			Temperature—	in de	rees I	Pahrenheit.					Precipitation—in incl	hes and	hundredths.	
Section.	average.	from nal.		Mon	thly e	extremes.			average.	from al.	Greatest monthly	y.	Least monthly.	
	Section av	Departure from the normal.	Station.	Highest.	Date.	Station.	Lowest.	Date.	Section ave	Departure from the normal.	Station.	Amount.	Station.	Amount.
AlabamaArizonaArkansas,CaliforniaColorado	68. 6 61. 9 62. 7 59. 1 43. 4	+ 4.8 - 1.3 + 0.6 - 0.8 - 2.7	3 stations	101 105 101 108 99	3† 11 4 8 2	Riverton Flagstaff (2) 2 stations Tamarack Dillon	12 25 13	23 22 22 2† 2† 21	3. 12 1. 98 1. 67 0. 58 2. 26	+ 0.51 + 1.47 - 0.84 - 1.04 + 0.81	Mentone	6, 58 4, 41 4, 18 4, 11 10, 85	Evergreen	0.3 0.0 0.4 0.0 0.3
Florida Georgia Hawaii (September) Idaho	76.6 69.1 73.1 44.7	+ 4.6 + 4.9 - 2.9	2 stations	99 101 92 88	5† 6† 3† 8	Molino	40 30 41 5	23 24† 9 30	5. 25 4. 96 10. 30 1. 52	+ 1.16 + 2.27 + 0.30	Pinellas Park Valona Keanae Valley, Maui Middle Fork	11.87 10.63 43.91 3.90	Gainesville	1.5 1.2 0.0 0.1
Illinois. Indiana Iowa. Kansas. Kentucky.	54.0 54.7 48.7 58.4 59.9	$ \begin{array}{r} -0.6 \\ 0.0 \\ -3.2 \\ -1.9 \\ +2.5 \end{array} $	Mascoutah. Huntingburg 2 stations	92 92 87 97 94	6 3 3 1†	Lanark	19 23 14 15	28 28† 28 31	1.36	$ \begin{array}{r} + 0.60 \\ + 1.51 \\ + 0.99 \\ - 0.79 \end{array} $	Greenville	5. 59 9. 20 7. 03 6. 80	Metropolis. Mount Vernon Northboro. 2 stations. Blandville.	0.9 1.5 0.7 T.
Louisiana Maryiandand Delaware Michigan Minnesota	70.0	$+2.6 \\ +1.0$	2 stations. Liberty Hill. 2 stations. 3 stations. Winnebago.	103 85 78 76	3 2 4 4† 3	2 stations	27 26 23 10 6	24† 23 26† 31 31	3. 61 3. 29 3. 40 4. 52 3. 85	+ 1.52 + 0.69 + 0.31 + 1.89 + 2.38	Farmers Donaldsonville Deer Park, Md Croton Red Wing	8, 42 8, 91 6, 23 7, 33 9, 60	Ferriday	0.7 0.2 2.0 1.3 0.2
Mississippi Missouri Montana Nebraska Nevada	68.1 56.9 41.6 47.9 47.7	- 3.4	Cuibertson Holdrege Logan	90 87 90	8† 11 18	Bowen. Canton (near). Halleck.	- 4 - 5	23 27 27 28	2.01 3.35 1.55 3.19 0.36		Pascagoula	3. 57 10. 86 1. 30	Plains. Nebraska City Geyser	T. 0. 3
New England New Jersey New Mexico	48. 6 53. 9 52. 1	- 0.7 - 0.1 - 1.4	Farmington, Me Bridgeton Carlsbad	78 80 97	11 4 3	Norfolk, Mass Layton 2 stations	15 18 - 1	30 29 21	4.04 5.49 2.16	+ 0.52 + 1.70 + 1.06	Canton, Conn Culver's lake Harvey's upper ranch.	9, 58 8, 23 6, 86	Patten, Me Cape May Cambray	1 2 0
New York North Carolina North Dakota Ohio Oklahoma	42.5 53.3	$ \begin{array}{r} -0.6 \\ +3.3 \\ -1.2 \\ +0.1 \\ +0.5 \end{array} $	Addison. 3 stations. Medora. 2 stations. Waukomis.	82 96 86 88 101	4 2† 9 1	Griffin Corners Banners Elk Medora 4 stations Hurley	20	29 26 31 29 29		+ 0.66 + 1.09 + 0.33 + 2.79 - 0.82	Mohonk Lake Manteo Bottineau Piqua Webbers Falls	10. 51 8. 42 2. 48 8. 32 5. 42	Adams Center Scotland Neck Edmore Kenton Elk City	1.4 1.8 0.1 2.3 0.1
Pennsylvania	51. 2 52. 3 78. 2	$ \begin{array}{r} + 0.3 \\ - 1.2 \\ + 0.6 \\ + 0.5 \\ + 4.5 \end{array} $	Pendleton	93 83 98 99	8 4 5† 7	Cliff 2 stations 2 stations Heath Springs	6 18 58	27 29† 18† 29	1.49 4.83 9.94 5.89	$ \begin{array}{r} -0.82 \\ -1.55 \\ +1.32 \\ +0.12 \\ +2.75 \end{array} $	Pompeii. Hamburg Lares. Liberty	5. 55 9. 23 28. 41 14. 17	Huntington. Hanover. Vieques. Smith Mills.	0. 0 2. 8 3. 1 2. 7
South Dakots Tennessee Texas Utah	44.8 63.0 67.4 45.2	- 3.7 + 4.2 0.0 - 2.0	Sorum. Union City Fort McIntosh Low	92 99 104 89	9 2 2 13	Murdo	0 25 24 4	30 23 22† 20	2.66 3.26 2.09 1.08	+ 2.21 + 0.82 - 0.34 + 0.17	Parkston	7.77 7.38 7.75 6.31	Frederick	0. 2 0. 3 0. 0
Virginia	58. 4 49. 1 56. 3 45. 8 38. 9	+ 0.2 - 0.7 + 2.1 - 2.0 - 3.3	2 stations. Mottinger Williamson. Merrill Eaton's ranch.	92 99 88 79 86	7 7 1 12 8	Burkes Garden Lake Kachess Bayard 2 stations Foxpark	23	26 28 25 31 21	4. 24 0. 91 5. 28 5. 59 1. 44	+ 1.07 $- 1.60$ $+ 2.80$ $+ 3.17$ $+ 0.33$	Mendota. Quetts River. Princeton Eau Claire. Bechler River, Y. N. P	6.84 4.94 9.65 10.35 6.94	Cape Henry	1. T. 3. 2 1. 3

† Other dates also.

TABLE I .- Climatological data for United States Weather Bureau stations, October, 1911.

	Èlev	ratio			ressure inches		Ter	nperat	Fa	of th	ne a	ir, i	n de	gree	S		of the	ty, per		pitati ches.	on,		1	Wind.						tenths.		end of
Districts and stations.	above sea feet.	r above	above	n, reduced to	reduced to	from nor-	+ mean	from nor-			um.			um.		-	temperature of dew point.	relative humidity, 1 cent.		e from	0.01, or	movement, miles.	rection.		x i m elocit			days.			u.	ground at e
	Barometer al level, fe	Thermomete	Anemometer a	Station, red mean of 24	Sea level, red mean of 24	Departure fra mal.	Mean max. +	Departure fr mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum	range.	Mean wet the	Mean temp dew	Mean relativ	Total.	Departure normal.	Days with 0.01, more.	Total mov	Prevailing direction	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy	Cloudy days.	Average cloudiness,	Total snowfall	Snow on gre
New England. Eastport. Greenville. Portland, Me. Concord. Burlington. Northfield. Boston. Nantucket. Block Island. Narragansett. Providence. Hartford. New Haven.	76 1,070 103 288 404 876 125 12 26	67 6 81 70 11 16 115 14 11 9 141 122	85 117 79 48 60 188 90 46	29. 99 28. 90 29. 98 29. 79 29. 65 29. 15 29. 96 30. 08 30. 05	30. 07 30. 08 30. 10 30. 11 30. 09 30. 12 30. 10 30. 08 30. 08	+ .07 + .06 + .06 + .05 + .08 + .03 + .03 + .04 + .04 + .04	43. 4 49. 4 47. 1 46. 7 43. 8 52. 6 53. 6 54. 0	- 0.1 + 0.3 - 1.6 - 0.2 + 0.2 + 0.3 - 0.9 - 1.3 - 0.5	71 71 70 67 68 73 70 66 72	11 12 16 10 10 12 22 4	52 52 57 57 55 54 59 59 60 60 61	29 20 28 23 25 19 34 37 40 27 29 31 32	28 29 29 28 28 28 29 29 29	41 35 42 37 38 33 46 48 50 44 44 44	21 39 26 36 30 39 26 18 15 28 26 31 28	43	38 37 44 49 49	80 81 69 83 76 86 85 84 79 75	3.66 1.57 2.63 1.85 3.73 2.84 3.96 2.27 2.57 3.94 3.44	+ 0.1 - 2.3 - 1.8 + 0.5 - 0.3 + 1.5 - 1.6 - 0.2 - 1.0 + 3.4 + 3.5	11 12 12 10 13 11 12 12 12	7,746 6,524 3,371 8,246 5,119 7,023 10,774 12,119 6,381	nw. nw. s. s. nw. ne. sw. w	40 37 26 45 34 33 58 49 40 28 34	nw. s. n. nw. ne. nw.	13 5 5 4 12 5 2 5 2 5 7	5 13 10 7 8 11 10 6 15 11 7	12 5 7 11 11 6 7 9 3 7	14 13 14 13 12 14 14 16 13 13	6.1 6.9. 5.4. 5.9 6.4 6.0 6.0. 6.3. 6.9. 5.5. 6.4. 5.3.	1.2 0.2 0.9 2.2	
Middle Atlantic States. Albany. Singhamton. New York. Harrisburg. Philadelphia. Seranton. Atlantic City. Sape May. Saltimore. Vashington. Synchburg. Gount Weather. Gorfolk. Richmond. Vytheville.	871 365 374 117 805 52 17 123 112 681 1,725 91	78 414 94 123 111 37 9 100 62 83 10 102	88 454 104 119 48 56 113 85 88 54 111 197	29. 16 29. 75 29. 70 29. 97 29. 24 30. 03 30. 08 29. 97 29. 36 28. 25 29. 99 29. 95	30. 10 30. 08 30. 11 30. 10 30. 11 30. 09 30. 10 30. 09 30. 10 30. 08 30. 09 30. 11	+ .03 + .04 + .02 + .03 + .02 + .01	50. 6 49. 1 55. 6 54. 6 57. 4 51. 0 57. 2 58. 0 58. 3 57. 2 59. 2 52. 5 62. 6 59. 2	- 0.1 0.0 + 0.6 + 1.1 - 0.4 - 0.2 - 1.6 + 0.8 + 0.6 + 2.3 + 1.0 - 1.3 - 0.6	75 72 79 76 74 73 76 78 80 87 75 89	4 4 4 4 4 4 4 7 4 7	59 58 62 62 64 66 66 66 69 69 69	31 25 39 33 41 26 41 38 41 38 41 38 40 30	29 28 29 29 29 29 29 26 25 28 27 29	43 50 51 51 48 50 46 56 50	30 35 23 25 22 26 29 38 30 33 34 38	50 49 51 47 53 54 53 52 53 48 58 54 58	45 45 47 44 50 51 49 49 51 45 55	78 78 76 74 80 80 80 80 76 80 84 82 82 82 82	5.00 3.37 5.38 2.80 4.20 4.00 2.73 2.61 3.31 4.07 3.87 4.37	+ 0.6 + 2.0 + 0.2 + 1.7 - 0.2 + 1.1	12 13 12 10 13 14 12 15 12 11 12 15	3, 641 11, 022 4, 348 6, 169 4, 256 5, 914 6, 067 4, 725 4, 287 2, 316 11, 201	e. sw. n. n. n. n. n. n. n. nw. nw. ne.	355 244 544 266 333 288 299 444 233 222 200 522 300 277 233	se. nw. nw. sw. sw. se. n. ne. se. nw. ne. sw.	14 17 5 5 4 4 18 18 27 7 17 5 7	8 8 9 12 9 7 12 7 8 9	7 8 10 9 6 8 12 11 7 12 10 7	10 20 15 13 14 16 11 10 13 12 12 12 13 14	5.9 4.9.7.6.6.4.6.2.6.6.2.5.5.6.0.5.9.6.3.5.4.4.6.		
outh Atlantic Statessheville harlotte latteras lanteo .taleigh vilmington harleston olumbus, S. C ugusta avannah avannah avksonville	2, 255 773 11 12 376 78 48 351 180	53 68 12 12 103 81 11 41	75 76 47 46 110 91 92 57	27. 75 29. 25 30. 04 29. 68 29. 98 30. 00 29. 69	30. 09 30. 09 30. 05 30. 08 30. 07 30. 04 30. 07	.00 + .01 01 + .01 + .01 02	67.4 59.2 63.4 67.2 61.4 62.5 67.2 71.6 67.0	+ 3.8 + 3.9 + 2.3 + 1.2 + 2.0 + 3.9 + 4.5 + 3.0 + 5.3	85 91 85 92 92 91 93 92 93	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	69 72 72 71 71 76 78 76 77 79 83	35 41 55 42 43 50 54 46 47 53	26 25 14 14 25 27 29 25 23	49 55 62 58 54 58 65 58 60 64	35 26 17 39 26 17 27 25 21 22	53 57 63 57 62 67 60 62 66 70	50 55 61 54 60 65 58	88 83 81 85 82 84 86 81 80 83	4.72 3.83 3.51 2.43 8.42 3.08 2.75 3.92 6.63 7.46 4.58	+ 0.8 + 0.9 + 0.4 - 3.6 + 2.4 - 1.0 0.0 + 3.8 + 5.1 + 1.0 + 0.2	9 8 10 8 14 9 8 10 8 8	5, 235 4; 104 10, 923 5, 205 5, 425 7, 980 4, 424 3, 942 7, 741	se. ne. ne. ne. ne. ne. ne. ne.	27 20 40 28 23 28 22 19 39	n. sw. n. ne. ne. ne. w.	222 177 77 244 33 244 2 311 311	10 11 8 21 9 7 7 8 8	12 6 16 2 9 15 14 11 11	9 14 7 8 13 9 10 12 12	5.6 5.2 5.8 5.2 5.9 5.5 5.7 6.1 5.8		
Florida Peninsula. Ley West	25 35	10 37 79	53 72 96	29, 92 29, 94 29, 94	29. 94 29. 97	.00	80.2 81.8 80.6 78.3	+ 3.9 + 3.1 + 2.8 + 5.7	89 90 92	23 15 6	87 86 86 88	72 70 62 61	13	75 70	15 16 21 27	76 75 72	73	81 80 79 85	5. 32 3. 53 5. 66	+ 0.6 - 0.1 - 0.7 + 2.7	9	4, 849 6, 020 4, 996	ne.	23 26 22	ne.	30 26 17		14 11 10 8	4 8 8	5.2. 4.8.		ļ.
East Gulf States. Atlanta. Accon. Consacols Anniston Sirmingham Alobile Hontzomery Heridian Heridian Heridian Heridian Heridian Heridian Heridian		190 78 8	216 87 57	28. 84 29. 65 29. 72	30. 07 30. 05 30. 01		70.1 65.8 69.4 73.4	+ 4.6 + 3.4 + 5.7 + 5.2	94 95 97	3 3 5		39 43 48 46 36 37 44 42 36 39	23 23 23 23 23 23 23 23 23 23 23 23 23 2	57 61 63 67 57 58 65 62 57 59			57 63 60 58 57	79	3.96 4.81 5.96 4.90 8.63 2.16 6.07 2.89 2.91 2.56 0.67	+ 1.2 + 2.5 + 3.8	8 8 7 10 8 6 7 7 8 7	7,359 4,001 3,471 8,225 3,460 3,872 4,949 4,199	ne. ne. ne. se. n. ne. ne. ne.	33 18	W. ne. ne s. w. se. nw. sw. sw. nw.	17 24 31 16 16 16 22 16 16 22	10 12 16 13 12	11 9 5 7 15 7	10 10 10 13 12 5 13 7	5.1		
West Gulf States. hreveport. entonville ort Smith ittle Rock frownsville orpus Christi ort Worth alveston louston alestine. an Antonio aylor.	249 1,303 457 357 20 670 54 138 510 701 583	77 11 79 139 4 69 106 106 111 73 80	84 44 94 147 77 114 112 121 79 91	29. 78 28. 69 29. 56 29. 90 29. 90 29. 32 29. 97 29. 87 29. 51 29. 30 29. 43	30. 05 30. 05 30. 04 30. 07 29. 96 30. 01 30. 03 30. 04 30. 02 30. 04	.00 .00 01 + .01 + .01 .00 + .01	66.9 59.0 62.7 63.2 75.3 73.6 66.2 72.7 71.2 66.9 70.4	+ 4.6 + 1.3 + 1.0 + 1.0 + 0.3	94 89 90 89 94 89 95 88 92 94 95	6 2 2 3 14 7 1 3 4 3 3	77 68 72 72 86 80 76 78 80 76 80	38 30 35 37 44 47 36 49 43 38 40 38	22 22 28 23 22 22 22 22 22 22 22	49 54 54 65 67 56 68 62 58 60	31 31 34 29 35 22 35 26 26 28 33 33	59 55 58 67 57 67 59 60	51 56 64 50 65	74 76 74 84 77 64 80 74 66	2.05 0.73 1.98 1.23 0.41 0.66 0.86 0.99 5.92 4.72 3.04	- 1.5 - 2.4 - 8.3 - 1.6 - 2.1 - 1.2 - 1.5 + 1.7 - 0.6 + 2.1	6 8 7 3 6 12 5 9 9 8 5	3, 697 3, 642 5, 514 5, 935 9, 310 7, 786 7, 882 5, 218 5, 099	se. s. e. sw. se. n. s. n. n. ne. n.	24 33 27 40 38 42 27 22 22	n. sw. nw. nw. e. nw. nw. nw. nw. nw.	21 6 15 21 30 15 21 21 16 21	15 13 14 15	6 8 4 6 10 13 4 7 8	10 10 10 10 10 8 6 11 8 9	4.7		
hio Valley and Tenn. hattanooga noxville. emphis ashville exington. ouisville vansville dianapolis incinnati olumbus ayton ittsburgh urkersburg lkins	702 996 399 546 989 525 431 822 628 824 899 842	189 93 76 108 75 111 72 154 152 173 181	213 100 97 191 102 132 82 164 160 222 216 410 84	29. 27 29. 02 29. 66 29. 50 29. 61 29. 19 29. 41 29. 20 29. 12 29. 12 29. 14 29. 14 29. 14 29. 14 29. 14	30. 08 30. 07 30. 09 30. 08 30. 08 30. 08 30. 08 30. 09 30. 09 30. 09	01 02 + .02 00 01 .00 + .01 + .01 + .01	58.9 65.6 64.0 63.9 63.0 58.2 59.6 59.6 54.8 57.4 1 54.7	+ 1.9 + 4.8 + 5.9 + 1.4 + 2.7 + 1.7 + 1.6 - 0.2 + 0.4 0.0	92 90 89 90 85 89 88 84 84	3 3 3 3 3 6 6 6 4 1	75 73 72 73 67 68 68 66 63 66 66 66 66 66	39 38 37 35 35 38 38 32 35 32	23 25 28 23 28 28 24 29 28 29 29 29	56 55 56 53 50 51 51 47 49 46 46 46 46	29 33 26 33 32 33 31 32 33 34 35 29 32 41	59 58 57 56 54 54 52 50 50 49 52 49	56 55 53 53 50 50 46 49 47 47 45 50 47	80 78 80 74 76 78 78 78 79 80 81 83 76 85 87	8.75 - 4.87 - 3.78 - 0.36 - 2.21 - 3.67 - 2.89 - 1.64 - 4.03 - 4.54 - 5.21 - 4.34 - 4.94 - 94	+ 1.2 + 2.0 + 1.2 - 2.4 - 0.3 + 1.4 + 0.3 - 1.5 + 1.2 + 2.2 + 2.9 + 2.6 + 2.0	8 8 6 6 12 15 11 12 14 11	4,837 3,127 5,727 5,565	n. ne. ne. n. ne. ne. n. ne. n. ne. n. ne. n.	28 24 28 30 36 30	nw. sw.		10 10 16 11 6 7 6 7	12 12 4 10 10 10 17 13 11 11 5 8	9 8 9 11 10 15 14 6 13 6 11 14 6 13 19 7 14 6 18 7	6.0		* * * * * * * * * * * * * * * * * * * *

Table I .- Climatological data for U. S. Weather Bureau stations, October, 1911-Continued.

	Elev	atio			ressure inches		Ter	mperat	ure Fa	of t	he a	ir, i it.	n de	egree	es	2	of the			pitatio	on,	- 1	,	Vind.						tenths.		o pue
Districts and stations.	above sea feet.	above	above	ced to	reduced to	m nor-	+ mean	m nor-			am.			m.	daily	wet thermometer	dew point.	cent.		from	0.01, or	movement, iles.	ection.		x i m elocity			days.				ground at e
	Barometer ab level, fee	Thermometer ground.	Anemometer ground.	Station, reduced t mean of 24 hours.	Sea level, redi	Departure from mal.	Mean max. +	Departure from mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest drange.	Mean wet the	Mean tempe dew Mean relative	8	Total.	norms	Days with 0 more.	Total mov miles.	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy	Cloudy days.	Average cloudiness,	Total snowfall	Snow on gro
Lower Lake Region.							50.7	- 0.9										79	8.72	+ 0.8										6.1		
Buffalo	448 335 523 597	76 86 97	71 91 102 113	29. 60 29. 70 29. 52 29. 45	30. 08 30. 08 30. 10 30. 10	$\begin{array}{c} + .03 \\ + .05 \\ + .04 \end{array}$	47. 5 50. 0 50. 4 50. 1	+0.3 -1.2 -0.4 -0.9	73 74 75 78	10 4 4 4 4	56 56 58	33 24 30 28 29	28 28 28 28 28	39	25 28 26 28 30	47 46 45	42 41	77 80 77	3. 52 3. 03 2. 41 2. 16	+ 0.2 + 0.2 - 0.3 - 0.4 - 1.0	11 11 13 11	7,214 7,302 5,708 7,895	sw. se. sw.	48 35 44 48	sw. w. nw. w. sw.	4 4 4	9 4 9 6 5	12 7 14 11	15 11 15	7. 0 6. 1 5. 9 6. 4	T.	
rielevelandanduskyoledoort Wayneoetroit	762 629 628 856	190 62 208 113	201 70 246	29. 26 29. 39 29. 40 29. 15	30. 09 30. 09 30. 09 30. 09	8 + .03 9 + .03 1 + .02 1 + .04 1 + .04	51.4	- 1.6 - 1.2 - 1.5 - 1.2	78 80	4 4 6 6 6 6 6 16	58 58 59 59 60 57	33 34 32 33 29 32	29 29 29 29	43 45 46 46 44 43 45	24 27 30 31 32 21	47	44 44 44	74 79 80 82 81	5. 16 5. 06 4. 46 3. 51	$ \begin{array}{r} -0.3 \\ +2.4 \\ +2.6 \\ +2.2 \\ +1.9 \end{array} $	12 15 17 18	9,779 5,543 9,701 5,926	se. sw. sw. ne.	34 53 35	w. nw. w. sw. w.	4 4 4 4 4	5 9 10 13 5 9	5 6 3 9	17 15 15 17	6. 6 . 5 . 5 . 7 . 5 . 5 . 5 . 5 . 5 . 9 .		
Upper Lake Region.							47.2	- 0.4										81	3.98	+ 1.2										6.9		
Alpena. Escanaba Frand Haven. Frand Rapids. Lansing. Houghton. Marquette. Port Huron sault Ste. Marie. Thicago. Milwaukee. Freen Bay Duluth.	612 632 675 863 684 734 638 614 823 681 617	48 54 70 11 62 77 78 11 140 119 49	82 92 87 62 72 116 120 61 310 133 86	29, 40 29, 37 29, 30 29, 13 29, 29 29, 26 29, 38 29, 18 29, 32 29, 38	30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06	0 + .06 7 + .06 5 + .03 8 + .04 8 + .07 8 + .07 8 + .04 9 + .08 7 + .03 6 + .03 7 + .03	45. 6 49. 4 49. 6 48. 0 44. 7 45. 2 49. 1 43. 8 53. 2 50. 3 47. 2	+ 0.5 - 0.8 - 0.5 - 0.4 - 0.5 - 0.4 + 0.4 0.0 + 0.1 + 0.1	62 76 74 71 62 70 68 70 79 70	16 16 16 9 8 16 9 3 3 16	52 56 57 57 50 51 56 52 59 56 54	32 26 23 25 29 21	28 26 28 28 31 30	39 43 43 40 39 39 42 36	31 24 26 26 30 22 26 25 33 25 20 22 26	41 45 46 43 41 45 40 48 46 42	38 42 43 41 38 42 38 45 43 39	81 77 82 84 86 79 80 84 76 79 79 82	4. 63 6. 74 6. 71 5. 00 1. 88 1. 90 4. 10 3. 17 3. 79 3. 89	+ 0.5 + 1.5 + 4.2 + 4.2 + 2.8 - 1.3 - 1.3 + 1.4 - 0.1 + 1.2 + 1.5 + 2.3 - 1.4	12 15 15 14 11 13 11 15 12 12 10	6, 398 7, 767 4, 508 4, 143 6, 082 6, 403 7, 919 5, 494 9, 507 8, 129	w. e. se. e. w. ne. e. w. nw. sw.	42 39 46 35 25 42 38 44 48 44 42 46 40	nw. w. w. w. w. w. w.	3 4 4 4 4 28 4 4 4 4 3 4 3	3 10 5 7	7 9 8 9 4 12 7 3	18 17 19 16 21 16 14 23 15	6, 8 6, 9 7, 4 6, 6	T. 0.3 0.1 0.2	
North Dakota.						,	42.9	+ 0.3										80	0.98	- 0.3										5.8		
Ioorhead	1,482	11	57 44	28. 29 28. 46	30.10	8 + .08 0 + .11 3 + .07 3 + .08	43. 8 41. 5 42. 8	-0.3 + 1.0	80 77 81	8	54	7 8	31 31 31 31	34 33	34 38 32 42	39 38 37 36	35 34	85 79 82 75	0.71 1.65	- 1.0 - 0.3 + 0.4 - 0.2	12 10		nw. se.	56 35		3 3 3 3	8 9	9	14		T. 0. 1 0. 3	
Minneapolis t. Paula Crosse Madison harles City Davenport Des Moines Dubuque Keokuk airo .a Salle. Peoria. pringfield, Ill Hannibal. t. Louis.	940 714 974 1,015 606 861 698 614 350 536 609 644	203 111 70 10 71 84 100 64 87 56 11 10 74	212 48 78 49 79 101 115 78 93 64 45 91 109	29. 27 29. 01 28. 98 29. 40 29. 14 29. 33 29. 40 29. 50 29. 50 29. 41 29. 38 29. 49	30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06	3 + .05 5 + .05 6 + .05 8 + .05 8 + .05 6 + .02 9 + .05 9 + .05 8 + .01 8 + .04 8 + .03 8 + .04 8 + .03 8 + .03 6 + .03 8 + .05	45. 8 45. 8 47. 0 48. 4 47. 0 51. 0 50. 6 48. 9 52. 6 60. 3 51. 4 54. 4 54. 4	- 2. 3 - 2. 9 - 0. 4 - 1. 2 - 1. 6 - 1. 9 - 3. 1 - 1. 9 - 1. 2 - 0. 1	72 70 73 72 76 84 -78 76 86 89 85 86 86 88	12 3 3 3 3 3 3 3 3 3 3 3 3 3	53 55 55 55 59 58	23 22 24 28 24 28 26 27 31 37 30 25 34 31 35	31 28 27 28 27 28 28 22 21 27 29 27	39 39 42 38 43 41 45 52 43 41 46 46	25 25 32 23 30 29 28 30 30 24 31 31 27 29 27	41 44 42 47 45 44 48 54 46 49	40 40 44 41 40 45 52 44 45	75 85 83 75 78 82 80 84 77	6. 42 7. 55 6. 39 2. 92 2. 81 1. 57 2. 61 2. 34 2. 19 1. 08 2. 40	+ 3.8 + 5.2 + 3.9 + 0.5 + 0.8 - 0.1 - 0.3 - 0.3 - 1.6 - 0.1 - 0.6 0.0	13 13 12 12 12 9 14 10 8 7 12 11 8	3,373 6,452 4,584 5,123 5,552 3,983 5,163 5,996 5,116 4,631 5,714	se. s. nw. se. nw. nw. nw. nw. nw. s. s. sw.	48 40 23 35 24 28 29 24 34 26 25 25 30 30	nw. w. ne. w. sw. se. nw. w. n. sw. sw.	6 4 4 5 3 3 3 13 4 23 277 3 6 6 6 6 6 6 6	8 9 6 8 11 8 8 10 9 6 5 5	10 6 7 9 6 10 7 7 5 12 11	13 16 18 14 14 13 16 14 17 13 15 12	6. 0 5. 8 6. 2 7. 0 6. 2 5. 8 6. 3 6. 0	0. 7 1. 6 T. 0. 5 T. T.	
Missouri Valley.	784	11	84	20 24	30.00	+ .02		- 1.5		3	64	30	22	47	20			78	2.81	+ 0.9		5,218		99	sw.	6	e		14	6.5	T.	
Kansas City tt. Joseph pringfield, Mo. ola opeka. Ancoln maha 'alentine ioux City 'ierre. Huron 'ankton	963 967 1,324 984 983 1,189 1,105 2,598 1,135 1,572 1,306	161 11 98 11 85 11 115 47 94 70 56	181 49 104 50 101 84 121 54 164	29. 02 29. 01 28. 66 29. 00 28. 78 28. 87 27. 35 28. 84 28. 42	30. 06 30. 06 30. 06 30. 06 30. 06 30. 16 30. 07 30. 16	6 + .02 6 + .02 6 + .03 6 + .03 6 + .03 6 + .09 7 + .05 1 + .09 1 + .09	55. 4 53. 7 57. 6 56. 8 55. 0 51. 8 44. 6 48. 0 46. 8 47. 2	- 0.4 - 2.1 - 0.3 - 0.1 - 1.3 - 1.5 - 2.4 - 3.9 - 3.1 - 2.3 + 0.3 - 3.3	84 80 88 88 84 75 76 77 73 77 71 73	3 3 2 1 5 3 9 3 8	63 62 65 67 64 61 60 56 56	32 32 33 30 34 27 29 17 23	27 31 22 22 31 31 31 28 28 30 30	50 46 46 42 44 34 40 38	30 32 30 38 29 34 32	45 45 39 43 41 40	46 49 41 41 35 40 36	76 82 82 82 77 73 78 80 72 81	4.06 5.44 3.04 2.23 0.81 1.63 1.26 4.80 3.22 0.48 2.36 5.91	+ 1.8 + 0.2 0.0 - 1.1 - 0.2 - 1.1 + 3.5 + 1.4 - 0.3 + 1.0 + 4.3	10 8 9 9 7 9 7 11 11 8 11 10	8, 446 5, 344 7, 281 5, 380 6, 882 6, 955 5, 903 6, 461 7, 972	n. nw. se. n. se. n. nw. nw. nw. nw.	42 31 28 26 36 38 27 36 39 54 42	n. nw. se. s. s. n. nw. w. nw.	12 12 5 24 6 16 22 3 3 3 3 22	6 12 6 10 11 8 17 13 11	8 12 7 14 10 7 12 9 7 6	17 13 12 11 11 13 11 5 9 13 16	6. 7 6. 3 5. 4 5. 7 5. 5 5. 7 3. 9 4. 8 5. 3 6. 3 5. 9	T. T. T. T. T. 3.9	3
Northern Slope.	2,505	11	44	27.43	30.00	+ .10		+ 0.6		9	55	11	31	34	40	39	36	72 80	0.80	+ 0.5 + 0.3		5,057	nw.	30	nw.	18	16	9	6	4.6	0.6	
files City felena. Calispell tapid City heyenne ander heridan. Cellowstone Park North Platte	2,371 4,110 2,962 3,234 6,088 5,372 3,790 6,200	26 8 11 46 56 2 2 9 11	5 48 5 56 1 34 5 50 6 64 6 36 47 48	27. 52 25. 87 27. 01 26. 66 24. 04 24. 70 26. 17 23. 93	30. 1: 30. 1: 30. 1: 30. 1: 30. 0: 30. 1: 30. 1: 30. 1:	2 + .12 $3 + .10$ $1 + .10$ $3 + .12$ $8 + .07$ $4 + .10$ $3 + .12$ $4 + .10$ $4 + .10$ $4 + .10$ $4 + .10$	47. 2 40. 7 42. 4 44. 8 42. 6 40. 1 41. 0 35. 6 46. 0	+ 0.7 - 3.3 - 0.1 - 1.8 - 2.7 - 2.0 - 5.9 - 4.0	85 76 70 79 74 69 82 69 77	8 9 9 9 14 9 8 8	58 51 54 55 54 54 55 47	15 16 18 13 13 12 11	31 27 28 31 21 21 27 27	36 31 31 35 31 26 27 24	46 38 35 40 38 39 51	40 35 36 37 35 32 34 28	36 31 32 30 28 26 28 28 23	78 75 74 63 65 64 71 68 78	0. 94 2. 40 0. 84 1. 21 0. 95 0. 73 1. 22 1. 17 3. 66	+ 0.2 + 1.6 - 0.3 + 0.1 + 0.2 - 0.3 + 2.5	3 10 8 6 10 9 8	5,832 7,335 2,288 4,807	w. w. nw. ne. nw.	18 38 46 26 46 29	nw. w. n. w. w. nw. nw. nw.	18 15 17 3 3 14 14 14	13 12 16 15 13 17 10 11	10 11 6 5 11 9 5	8 8 9 11 7 5 16 10	4. 2 4. 7 4. 2 4. 6 4. 8 3. 7 5. 7 4. 4 5. 4	0. 5 8. 2 T. 2. 9 2. 1 3. 4 5. 6 5. 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Middle Slope.	5 901	100	120	94 ***	20.0	8 1 00		- 2.0		**	80	-	01	-	0=	-	00	66	0.77			F 040		1		45	40			4.6		
Denver Pueblo Concordia Dodge City Wichita Oklahoma	1, 398	80	86	25. 32	30.0	6 + .05 $4 + .05$ $7 + .04$ $8 + .06$ $7 + .04$	49.4	- 2.9	86	14	59 63 63 66 68	19	21 31 22 22	43	50 34 42 37	45 50	31 42 40 44	54 60 72 70 71 68	1.09 0.35 0.63 0.94	- 0.6 + 0.4 - 1.6 - 0.8 - 1.4 - 0.5	7 5 6 5	5,642 4,557 4,853 8,212 9,375 11,216	nw. nw. n. ne.	48 26 44 48	nw. nw. nw. s. s.	15 16 5	15	9 15 9	6 11 7	3.9 3.5 6.1 4.6 5.1 4.7	3.5	

Table I.—Climatological data for U. S. Weather Bureau stations, October, 1911—Continued.

	Elev	ation umer	n of nts.		essure inches		Ter	nperat	ure Fa	of the	he a nhei	ir, ir t.	n de	egree	S			y, per		ipitati iches.	on,		V	Vind.					tenths.		ond of
Districts and stations.	above sea feet.	above	above	ours.	reduced to	m nor-	mean	m nor-			·m.	1		III.	, III		point.	humidity, nt.		from	0.01, or	movement, miles.	ection.		x i m elocit			days.			An pressure
	Barometer abo	Thermometer above ground.	Anemometer a ground.	Station, reduced mean of 24 hours.	Sea level, redu mean of 24 h	Departure from normal.	Mean max. + 1 min. + 2.	Departure from mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	reatest.	Mean wet thermometer	Mean temperature dew point.	Mean relative	Total.	Departure normal.	Days with 0 more.	Total movemiles.	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Cloudy days.	Average cloudiness,	Total snowfall	Canada Co month
Southern Slope.				•			62.4	0.0										65	1.12	- 0.7			-						4.	2	
bilene marilloel Rio	3,676	10	49	28. 24 26. 31	30. 04 30. 04	+ .03 + .04 + .01 + .08	64.7 57.1	+ 0.5	91	3	76 70 82 73	32 26 34 26	22 28 23 22	54 44 60	34 45 39	54 46		62 67	1.37 0.84	- 1.0 - 0.9		7,314 8,363	8. 8.	44	s. se.	5 5 7 20	16 18	8	7 4. 5 4.	3 3.	i
el Riooswell	944 3,578	8 9	57 57	29.01 26.40	29. 99 30. 04	+ .01 + .08	70.8 57.2	+0.9 -2.3	97 92	6 2	82 73	34 26	23 22	60	39 51	46	40	65	1.11	- 0.4 - 0.4	5 7	8,363 5,883 3,793	se. w.		ne. sw.	20	9 17	15	5 4. 7 4. 5 3.		
Southern Plateau.			174				58.8	- 1.2										54	1.55	+ 0.8									2.	5	
l Paso	3,762	110		26. 19	29. 92	.00	63.3	+ 0.9	91	2 2 17	76	35 21	22 21	51 36	38 34 47	49	37 31	45 62	0.43	- 0.5			e.	48 33		15 15	21	8	2 1. 5 2.		0
lagstaff	6,907	8 8 50	57	23, 38	29.96	L 04	45.4	$ \begin{array}{r} -3.2 \\ +0.7 \\ -1.2 \end{array} $	72	17	60	18	22	30 55	47	38 36 56	28 45	64 50	2.68	+ 2.1 + 0.8 + 1.9	8 8	5,528 5,232 2,683	e. e.	38 17	SW.	5 7	22 19 20	8 4 5 8 5 6	7 3. 3 2.	1 T.	.
uma	141	9	58	28.13	29.88	+ .01	72.8	- 0.6	101	14	83	49	23		45				0.84	+ 0.0	3		n.				26 24	5	0	1	
	3,910	11	42	25.98	29.90	+ .01			1	14	71	34	11	39	42	42	30		Т.	- 0.3		4,637	nw.	50	se.	9	24	0		4	
Middle Plateau.							47.9					.,						52		+ 0.3		lus.	1						3.	-	
eno	6,532	56 12	63	25.49	30.02	+ .03	50.0	+ 0.3	80	17 17	66	27 27	10 10	34 40	45 27	39	27	48	0.11	- 0.3	3	3,812	w. se.	35 40		9	20 20	7 8 3 10	4 2.		
onopah innemucca	4,344	18	56	25.66	30.08	+ .03	46.2	-2.4	79	8	65	17	20	28	27 51	38 36 35 41 37	24 26 22 32 29 33	54 44 53	0. 22	- 0.3	2	4,063	ne.	38	8.	8	19 18	3	9 3.	7 T.	
odena	5,479	10	189	24.64	30.01	+ .05	46. 1 50. 0	- 4.0 - 2.2	74	17	62	31	21	30 40	37	35 41	32	53	0.04 1.65	- 0.8 + 0.3	3 3		w. se.	50 38	e.	9 26	20	5	3 3. 6 3.	4 2.	.0
lodena. alt Lake City purango rand Junction	6,546	18	56	23.69	30.02	+ .03 + .05 + .04	45.9	- 3.0	71	14	60 60 62	17	21 21	40 32 37	44 37 38 36	37	29	63	5.07	+ 3.3	8	4,038	nw.	24 19	ne.	15	17	5 8 7	6 3.	6 0. 2 T.	. 5
	4,608	43	51	25. 43	30.03	+ .04	49.4	- 3. 5	14	9	62	23	21	31	30	41	33	-		+ 0.6		2,814	nw.	19	sw.	1 -	10	1			
Northern Plateau.							48.3	- 1.1										57	1.32	+ 0.1									4.	0	
Baker	3, 466	48	53	26.53	30.14	+ .06 + .05	44.7	- 0.8	76	8	57	22	28	33	36	38	30	61	1. 45				8.	26		8 9	19 19	7	5 3. 8 3.		
oise	2,739	78 10	86 51	27. 23 29. 31	30.11	+ .05	50.2	- 1.8 - 1.6	88	8	61 62	28 24	20 29	37 38	38 43	41			2. 45 1. 19	0.6) 7			25 36	W.	- 2	16	9	6 3.	9	
ocatello	4, 477	46	54	25.54	30.10	3 + .06 + .06	44.8	- 3.2	73	9	62 58 60	20	19	32	37	36	27	56	1.74	+ 0.1	5	5,269	se.	36	SW.	9	18	8	6 3. 5 3.	5 0.	. 2
Baker	1,929	101		28.05	30. 13	$\frac{3}{1} + .07$	47. 9 53. 2	+ 0.6	84	8	60	19 32	29 28	36 44	36 31	40 44	27 32 35	58 54	0.39	- 1. - 0.8	8 8			24 28	se.	8	16 18 10 17	7 4 9 8 13	7 4.	3	
	1,040	101	110	20.00	00.11	1 .03					-	02	-		0.			82		- 2.		1							6.		
N. Pac. Coast Region.								+ 0.5							-			-						1 -			10				
North Head	211 259		56 53			2 + .10	53.6	+ 0.7				45 30	29	50 38	20	51	49	87	2.32	- 1. d	1 13	10,393 $3,672$	se.	74 15	se, se,	25	10	8 19	3 5. 9 6.	3	
seattle	. 125	185	224	29.99	30. 12	2 + .07 + .07	52.5	+ 1.7	74	7	59 59	36	27	46	24 28 28 14	49	45	80	1.00	- 1.	9 8	4, 445	n.	32	S.	9	5	10	6 6.	8	
Tacoma Tatoosh Island	213		120	29.88 29.97	30.11	1 + .07 + .06	51.2	+ 0.6	73	20	59 55	33 44	27 29	43	28	49	47	86	0.96	- 2. - 5.	1 12			29	SW.	13	11	8 1 3 1 11 1	7 6.	5	. 4
Portland, Oreg	153	68	106	29. 93	30.09	0 + .03 0 + .01	54.2	+ 1.8	78	7 7	62	34	29	46	34	50	46	77	0.99	- 2.	7 8	3,940	nw.	25	8.	13	6	11 1	4 6.	4	
Roseburg	510	9	57	29.53	30.09	+ .01	51.8	- 1.0	78	7	63	32	27	41	34	48	45	79	1.21	- 1.	1 6	1,487	8.	16	5.	8	8	17	0 4.	8	
Mid. Pac. Coast Region							59.4	- 0.1										67	0.60	- 0.1	•								3.	3	
Eureka	. 80	73				+ .01	53. 4	+ 0.3	73	19	60	41		47	26	50		86	1.68		0 7				sw.	8			0 5.		
Mount Tamalpais Point Reyes Light	2,375	11	18	27.55 29.45	90 0	2 + .01	56 8		82 87	16 16	64 62	41			25 23	48	40	59	0. 29		0 3	10,200 $12,586$	nw.	62	nw.	25	17	9 8 6 6 9 7 5	5 3. 8 4.	2	
Red Bluff	332	50	18	29.63	29.98	05	62. 2	- 1.6	90	15	75 74	42	2	50	35 34	51	39	50	0.82	- 0.	8 5	3,880	nw.	24	nw.	18	21	6	4 2.	8	
acramento	.1 69				29.98	$ \begin{array}{r} $	61.6	- 0.6	86	16	74	44 50	29	49 53	34	54 53	48 48	66 72	0. 18 0. 28		9 1	4,452	se.	25		25	24 18	0	4 3	8	
an Francisco	141		204 110	29.85	30.00	0	59.0	+ 2.5	90	16	68 74	38	5	44	29 46				0.80	- 0. - 1.	1 8	3, 143	nw.	20	nw.	7	23	7	1 2.	5	
an Jose	. 30	9	17	29. 98	30.0	1	56.0		77	16	58	49	12	54	19				0. 12	- 1.	2 3	9,689	nw.	41	nw.	25	18	5	8 3.	7	• •
S. Pac. Coast Region.							63.6	+ 1.5										64	0.16	- 0.	6								2.	4	
Fresno	. 330		70	29. 61	29.93	7 + .01	63.8	+ 1.	91	16	79	41	31	49	40	51	40	51	0.09		6 5	2,988	w.	18		8	25 18	6	0 1.		
Los Angeles	. 338	159	191	29.57	29.9	$\frac{3}{3}02$	66. 4	+ 4.	95	16	77	51	28	56	35	55 57	48	62	0.16					20	nw.		18	11 8	2 2.	6	• •
San Diego	87	94	102		29. 9	$\frac{3}{8}01$	61. 2	+ 2.0	95	16 7 16	77 71 74	50 41	15 23	55 49	28 43	52	46	75 67	0. 28	- 0. - 1.	2	3,876	nw.	22		10		10		5	
West Indies.	-	1	1		1																									-	
		1					-																			-	1.	10		6	
an Juan	. 82	48	90	29.84	29. 9	2 + .02	80.8		91	13	87	72	7	75	16				3.30	- 2.	5 1	9 4,766	se.	25	se.	27	11	19	0 4	6	

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Table II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during October, 1911, at all stations furnished with self-registering gages.

		Total d	uration.	ipita	Excessi	ve rate.	before ve rate		E	epths	of pre	cipitati	on (in	inches) durin	ng peri	ods of t	time in	dicate	d.	
Stations,	Date.	From-	То-	Total amount of precipita- tion.	Began—	Ended-	Amount excessiv began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min
abilene, Tex Albany, N. Y Alpena, Mich	6 22 3	3.30-p. m.	5.10 p. m.	0. 41 0. 40 0. 79	3.32 p. m.	3.45 p. m.	0.01	0.12	0.27	0.38		*****						0.39 0.19			
marillo, Tex nniston, Ala sheville, N. C tlanta, Ga	16 16-17 16-17	4.55 p. m. 11.45 p. m. 5.54 p. m.	6.10 p. m. 6.35 p. m. 1.25 a. m.	0.13 0.57 2.14 1.29	5.00 p. m. 12.30 a. m. 7.39 p. m.	5.15 p.m. 12.40 a.m. 8.02 p m.	0.01 0.11 0.29	0. 28 0. 22 0. 27	0.38 0.31 0.43	0.44	0.75	0.81						0.13			
tlantic City, N.J. ugusta, Ga Do	31 10-11 27-28	4.54 p. m. 12.10 p. m.	D. N. a. m. 10.30 a. m.	0, 59 2, 69 2, 45	5.16 p. m. 1.28 p. m.	5.51 p.m. 1.58 p.m.	0. 10 0. 11	0.05	0.11 0.13	0.28 0.26	0.51	0.82 0.45	1.14 0.52	1.26				0.59			
aker, Oreg altimore, Md entonville, Ark. inghamton, N.Y	1 18 6 1			0.48 1.59 0.87 0.77														0. 21 0. 75 0. 28 0. 32			
Do	16-17	2.12 p. m. 8.57 p. m.	4.45 p. m. 9.00 a. m.	1. 69 2. 96	3.31 p. m. 11.38 p. m. 12.28 a. m. 1.18 a. m.	3.56 p. m. 12.28 a. m. 1.18 a. m. 1.59 a. m.	0.48	0.35 0.14 0.96 1.88	0.75 0.21 1.00	0.86 0.28 1.14 1.99	1.24	1.13 0.41 1.40 2.11	0.53 1.52 2.14	0.63 1.65 2.23	0.70 1.73 2.28	0.75 1.79 2.31	0.84 1.83				
ismarck, N. Dak lock Island, R.I. oise, Idaho	12 15 9			0.36 0.42 0.61														0.33 0.33 0.21			
oston, Mass uffalo, N. Y urlington, Vt uro, Ill	17 4 7			0.31 1.50 0.66 0.39									******	******				0.14 0.44 0.23 0.21			
nton, N. Y harles City, Iowa harleston, S. C harlotte, N. C	4 3 1 17	10.14 a. m.	5.00 p. m.	1.12 0.59 1.81 1.63		10.54 a. m.		0.19	0.37	0.62	0.81	1.02	1.15	1.21				0.38 0.31			
nattanooga, Tenn neyenne, Wyo nicago, Ill ncinnati, Ohio	1 16	2.40 p. m.	4.25 p. m.	1. 42 0. 35 0. 45	3.01 p. m.	3.11 p. m.	0.01	0.23	0.40				******					0.42			
leveland, Ohio olumbia, Mo olumbia, S. C	17 6 1	D. N. a. m. D. N. a. m.	10.41 a. m. D. N. a. m.	0. 98 1. 42 2. 14 0. 56	5.31 a. m. 4.26 a. m.	7.15 a. m. 4.37 a. m.	0.01	0. 17 0. 21	0. 43 0. 43	0.79 0.46	0. 91	0.95	1.01	1.09	1.15	1.24	1.34	0. 45 0. 70 1. 42	1.63	1.83	1.
oncord, N. H oncordia, Kans	6-7 18 12	6.40 p. m.	D. N. a. m.	2.66 1.58 0.11	6.59 p. m. 11.08 p. m.	7.18 p. m. 11.22 p. m.	0.03	0.06	0.24	0.49	0. 57							0.26			
r p u s Christi, Tex avenport, Iowa. ayton, Ohio	16 1 6-7	7.52 p. m.	4.45 a. m.	0. 52 0. 56 1. 76	1.14 a. m.	1.29 a. m.	0.62	0. 27	0.43	0.53								0.40 0.24			
el Rio, Tex enver, Colo es Moines, Iowa. etroit, Mich	30 5-6 15 22	4.15 p. m.	6.34 p. m.	0.36 0.07 0.68	5.36 p. m.	5.51 p. m.		0.07	0.27	0.44								0.31 0.04			
evils Lake, N. Dakodge City, Kans.	12 26-27			0. 90 0. 51 0. 36														0.56			
ubuque, Iowa uluth, Minn urango, Colo: astport, Me	14 16 4-5 22			0.48 0.49 3.18 0.41														0.34 0.12 (*) 0.16		1	
Paso, Tex	7 4 17			1.77 0.32 1.17														0. 42 0. 27 0. 28			
canaba, Mich ireka, Cal vansville, Ind agstaff, Ariz	6 8 1 26			1.81 0.58 0.91 0.59														0.34 0.26 0.64 0.24			
ort Smith, Ark ort Wayne, Ind. ort Worth, Tex. resno, Cal	15 1 12 9			0.52 1.26 0.37 0.08														0.25 0.44 0.22 0.06			
Do and Haven,	16 30	8.28 a. m. 3.30 p. m.	5.10 p. m. 7.35 p. m.	1.48	9.29 a. m. 4.37 p. m.	5.12 p. m.	0.07	0. 22 0. 09	0.39 0.37	0. 63 0. 61	0.74	0.80	0.98 0.91	0.96							
Mich Do and Junction, Colo	1 30-1 16 5	D. N. p. m. 4.35 p. m.	9.15 a. m. 7.45 p. m.	2. 20 0. 76 1. 03	3.42 a. m. 6.09 p. m.	4.46 a. m. 6.31 p. m.		0.08 0.16	0.13	0.17	0. 26		0.38	0.46	0.55	0. 64	0.73	0.82	0.96	1	
mand Rapids, Micheen Bay, Wis	3	4.23 p. m.	5.26 p. m.	2. 10 1. 47 0. 38	4.52 p. m.		0.03	0. 25	0.28									0.72			
arrisburg, Pa artford, Conn atteras, N. C avre, Mont	18			0.86 4.01 1.18 0.48														0. 24 0. 53 0. 52 0. 11			
elena, Mont oughton, Mich ouston, Tex	10-11 16 16	7,00 a. m	11. 35 a. m.	1.39 0.91 2.35	7.03 a. m.	8.18 a. m.	0. 01	0. 20		0. 57	0. 69		1.04				1. 45	(*)	2. 23		
Do uron, S. Dak dependence.Cal dianapolis, Ind.	30 2–3 17 6–7	12.45 p. m. 6 10 p. m.	8.15 p. m. D. N. a. m.	T. 1.40	2.40 p. m. 6.14 p. m.	3.23 p. m. 7.01 p. m.	0.01	0.06	0. 20	0. 23			0. 57	0.75			0.81	0. 27 T.			
a, Kans eksonville, Fla . Do	26-27 31 31	1.47 p. m. 12.23 p. m. D. N. a. m. 10.30 a. m.	4.42 p. m. D. N. a. m. 3.30 a. m. 5.30 p. m.	1. 02 1. 56 1. 34 1. 32	2.25 p. m. 6.05 p. m. 3.10 a. m. 3.58 p. m.	2.40 p. m. 6.32 p. m. 3.35 a. m. 4.06 p. m.	0. 15 0. 42 0. 11 0. 75	0.08 0.14 0.12 0.36	0. 33 0. 32 0. 32	0.42	0.48	0.58	0.65								
nlispell, Mont. nasas City, Mo. Do. okuk, Iowa	12 12-13 1	7.25 a. m. 11.20 p. m.	9.20 a. m. D. N. a. m.	0. 61 0. 69 0. 98	8.21 a. m. 11.30 p. m.	9.02 a. m. 12.08 a. m.	0.03	0.06	0. 12 0. 17 0. 26	0, 28 0. 38			0. 40 0. 76		0. 60	0.64		. 0. 23			
ey West, Fla noxville, Tenn Crosse, Wis	27		11.35 p. m.	1. 18 2. 05		11.05 p. m.		0.13										0.58			

¹ Sept. 30-Oct. 1,

Table II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during October, 1911, at all stations furnished with self-registering gages—Continued.

	in last	Total d	uration.	ipita-	Excessi	ve rate.	before e rate	1	D	epths	of prec	eipitati	on (in	inches) durir	g perio	ods of	time in	dicate	d.	
Stations.	Date.	From-	То—	Total amount of precipita- tion.	Began—	Ended-	Amount before excessive rate began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Lander, Wyo Lansing, Mich La Salle, Ill	1 1 30-1 3	D. N. p. m. 6.21 p. m.	6.30 p. m. 7.38 p. m.	0. 15 1. 92 0. 47	6.47 a. m. 6.39 p. m.	7.03 a. m. 6.53 p. m.	1. 22 0. 01	0. 11 0. 11	0. 29 0. 32	0. 36 0. 45	0.40							0.08			
Lewiston, Idaho Lexington, Ky Lincoln, Nebr Little Rock, Ark.	1 1 12 21	2.08 p. m.	3.50 p. m.	0. 26 1. 07 0. 45 0. 33	3.18 p. m.	3 33 p. m.	0.09	0. 20	0. 28	0. 35								0. 11 0. 35 0. 13			
Los Angeles, Cal Louisville, Ky Lynchburg, Va Macon, Ga	27 1 7 10	3.45 p. m. 8,10 p. m.	8.30 p. m. D. N. p. m.	0.16 1.05 0.63	4 01 p. m. 9.57 p. m.	4.17 p. m. 10 20 p. m.	0. 05 0. 23	0. 19 0. 06	0. 29 0. 32	0.39 0.51	0. 43 0. 62	0. 67									
Do	17 27 3	D. N. a. m. D. N. a. m.	4.55 p. m. 7.01 a. m.	1. 65 1. 20 1. 11 0. 44	1.36 p. m. 4.12 a. m.	1.57 p. m. 4.39 a. m	0. 32 0. 08	0. 20 0. 17	0.35	0. 41 0. 57	0. 50 0. 68	0. 54 0. 77	0.81					0. 62 0. 22			
Marquette, Mich Memphis, Tenn Meridian, Miss Miami, Florida	9 15 13	2.55 p. m. 6.40 p. m.	3 35 p. m. 8 55 p. m.	0. 19 0. 53 2. 04	3 08 p. m. 6 42 p. m.	3.23 p. m. 7.52 p. m.	0.01	0. 12 0. 07	0. 37 0. 28	0. 50 0. 45	0.71	1.01	1. 35	1. 55	1.64	1.68	1.74	0.04	2.02		
Do	29 3 3 16	5.45 a. m. 3.55 p. m. 2.00 a. m. D. N. a. m.	6 50 a. m. 6 30 p. m. 1 00 p. m. 6 15 a. m.	0. 45 1. 40 1. 52 1. 30	6.10 a. m. 5 27 p. m. 3 46 a. m. 5.07 a. m.	6 28 a. m. 6.07 p. m. 4.11 a. m. 5.38 a. m.	0. 01 0. 20 0. 37 0. 02	0. 07 0. 17 0. 07 0. 17	0. 17 0. 48 0. 24 0. 31	0. 36 0. 64 0. 36 0. 60	0. 44 0. 88 0. 43 0. 80	1.00 0.50 1.05	1.03	1.09	1. 17						
Modena, Utah Montgomery, Ala. Moorhead, Minn Mount Tamal- pais, Cal	10 3	4.15 p. m.	7.20 p. m.	0.03 0.94 0.39	4.22 p. m.	5.00 p. m.	0.02	0.18	0.43	0.59	0.69	0.76	0.82	0.88	0.92			0.03	******	*****	
pais, Cal Mount Weather, Va Nantucket, Mass.	9 17-18 15		D. N. a. m.	0. 12 2. 13 0. 28	9.00 p. m.	10.40 p. m.	0. 43	0.06	0. 14	0. 31	0. 37	0. 46	0. 56	0. 64	0.69	0.75		0.09 0.91 0.25	1. 16	1.37	
Nashville, Tenn New Haven,Conn New Orleans, La New York, N. Y	. 9 18 11 6			1. 13 4. 13 0. 66														0. 46 0. 59 0. 46 0. 31			*****
Norfolk, Va Northfield, Vt North Head, Wash	12 18 3			0.35 1.72 0.62														0.25			
North Platte, Nebr Oklahoma, Okla. Omaha, Nebr Oswego, N. Y	12 16 4			2. 61 0. 73 0. 65 0. 66														0. 45 0. 25 0. 36			
Palestine, Tex Do Parkersburg, W. Va Pensacola, Fla	13 16 17	9.25 a. m. 2.15 a. m.	1.15 p. m. 9.00 a. m.	1.50 0.89 1.74	9.52 a. m. 2.18 a. m.	10.52 a. m. 2.39 a. m.	0.01	0. 10 0. 11	0. 21 0. 24	0.34 0.38	0. 50	0. 66 0. 53	0.82	0.99	1.06	1. 13	1. 19	0. 45			
Do	10	1.45 a. m. 1.05 p. m. 3.45 p. m.	4.25 a. m. 3.15 p. m. 11.00 p. m.	0. 95 0. 78 3. 30	2.21 a. m. 1.40 p. m. 3.57 p. m. 4.47 p. m.	3.10 a. m. 2.07 p. m. 4.47 p. m. 5.37 p. m.	0.06 0.11 0.02	0.05 0.06 0.04 1.47	0. 19 0. 16 0. 23 1. 52	0.32 0.26 0.42 1.58	0.36 0.39 0.43 1.61	0. 43 0. 56 0. 43 1. 68	0. 45 0. 61 0. 53 1. 72	0. 46 0. 81 1. 75	1. 13 1. 80	1. 30 1. 81	0.79 1.40 1.85				
Do Peoria, Ill	11 6	3.15 p. m. 4.20 p. m.	4.30 p. m. 4.38 p. m.	0.81	5.37 p. m. 7.12 p. m. 3.19 p. m. 4.22 p. m.	6.08 p. m. 7.41 p. m. 3.46 p. m. 4.27 p. m.	0.01	1.93 0.08 0.15 0.26	2.00 0.21 0.36 0.52	2.04 0.28 0.64	2. 11 0. 34 0. 78	2. 15 0. 46 0. 80	2. 27 0. 53	2. 29							
Philadelphia, Pa Phoenix, Ariz Pierre, S. Dak	21 27 15 15			0.76 1.11 0.20 0.54									*****				*****	0.54 0.36 0.08 0.40	*****		
Pittsburgh, Pa Pocatello, Idaho Point Reyes Light, Cal Port Huron, Mich.	10 8 22			0.69 0.12 0.88														0. 10 0. 07 0. 47			
Portland, Me Portland, Oreg Providence, R. I	4 1 15			0.35 0.52 0.40														0. 12 0. 10 0. 21 0. 08	*****		
Pueblo, Colo Raleigh, N. C Rapid City, S. Dak Red Bluff, Cal	17 1 8			1.59 0.40 0.57														0.65 0.17 0.39			
Reno, Nev	26 12 4 13	3.10 a. m.		0.09 1.27 0.29 0.48	3.13 a. m.	3.27 a. m.	0.01	0.26	0. 55	0.68		*****						0.07 0.27 0.22			
St. Joseph, Mo	26 1 1 30-1		3.20 a. m.		12.48 a. m. 1.38 a. m.	1.38 a. m. 2.28 a. m.		0.09 0.85	0. 19 0. 96	0. 23 1. 00	0. 27 1. 01	0.33 1.11	0.40 1.38	0. 56 1. 54	1.74	0.72	2.36				
Do St. Louis, Mo St. Paul, Minn	12 1 3	9.50 p. m. 2.20 a. m.	D. N. p. m. 1.25 p. m.	0.84 1.00 1.69	2.28 a. m. 9.52 p. m. 3.43 a. m.	3.15 a. m. 10.04 p. m. 4.26 a. m.		2.38 0.13 0.10	2.40 0.36 0.14	2. 61 0. 45 0. 34	0.51	0.65	0.70	0.75	0.84		3.68	0.35			
UtahSan Antonio, Tex	10 30 30	8.30 a. m. 10.50 a. m.	10.15 a. m. 3.10 p. m.	0.73 0.90 1.41	9.16 a. m. 11.57 a. m.	9.45 a. m. 12.20 p. m.	0.25	0. 08 0. 09	0.30 0.22	0. 49 0. 30	0. 59 0. 44	0.66 0.56	0.73								
Do San Diego, Cal Sandusky, Ohio San Francisco, Cal San Jose, Cal	26 3 1 26			0. 18 0. 57 0. 16 0. 47														0.52			
San Luis Obispo, Cal. Santa Fe, N. Mex. Sault Ste. Marie,	27 4-5			0.12															*****		
Mich	16-17 10 11	10.23 a. m. 3.47 p. m.		0.92 1.65 0.65	(10.29 a. m. 11.28 a. m. 4.12 p. m.	10.54 a. m. 12.06 p. m. 4.34 p. m.	0.61	0.09	0. 28 0. 25 0. 15	0.44	0.58	0. 54 0. 66 0. 57	0.70	0.78	0.82						
Scranton, Pa Seattle, Wash Sheridan, Wyo Shreveport, La	1 24 17-18			1.02 0.25 0.42														0.43			

1 Sept. 30-Oct. 1.

Table II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during October, 1911, at all stations furnished with self-registering gages—Continued.

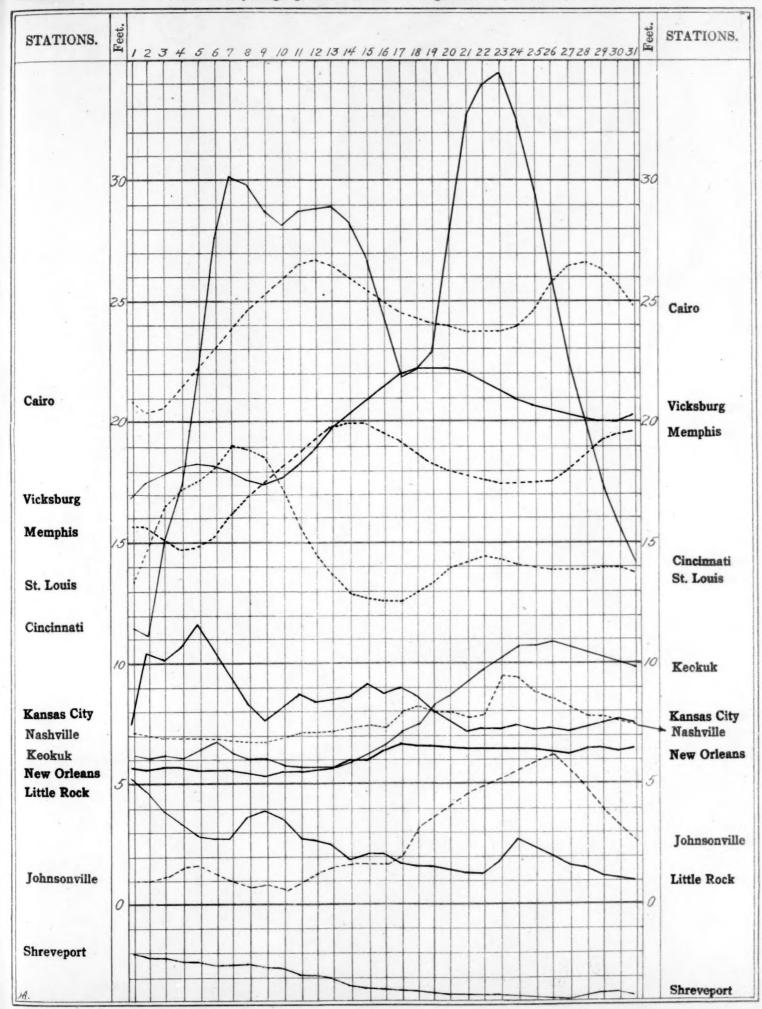
		Total d	l amount precipita- n.		Excessive rate.		before re rate	Depths of precipitation (in inches) during periods of time indicated.													
Stations.	Date.	From-	То-	Total an of prec tion.	Began-	Ended—	Amount before excessive rate began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min
Sioux City, Iowa	5			2.03														0.56			
Southeast Farai- lon, Cal	1			0.06														0.06			
Spokane, Wash	24			0.16														0.08			
Springfield, Ill	3	8.05 p. m.	D. N. p. m.	0.45	9.26 p. m.	9.39 p. m.	0.01	0.21	0.36	0.41			*****								
Springfield, Mo	1-2	11.03 p. m.		0.73	11.33 p. m.	11.55 p. m.	0.10	0.09	0.16	0.27	0.43	0.52	*****	*****	*****						
Syracuse, N. Y	6			0.44												*****		0.16		*****	
Tacoma, Wash	13			0.35		**********												0.10			
Tampa, Fla Tatoosh Island,	18	D. N. a. m.	7.15 a. m.	1.94	1.51 a. m.	2.26 a. m.	0.31	0.25	0.45	0.57			0.81	1							
Wash	9	**********		0.82														0.24	*****		
Faylor, Tex	16			0.43								*****						0.28			
Phomasville, Ga	17	9.48 a. m.	4.40 p. m.	1.01	3.10 p. m.	3.30 p. m.	0.41	0.08	0.25	0.29	0.42										
l'itusville, Fla	27-28			0.86														(*)		*****	
Foledo, Ohio	3	11.33 a. m.	2.15 p. m.	0.79	12.33 p. m.	12.57 p. m.	0.25	0.15	0.27	0.31	0.39	0.47									
Ponopah, Nev	26			0.13														0.12			
Topeka, Kans	13			0.15														0.15			
Valentine, Nebr	15			2.08														0.31			
Vicksburg, Miss Walla Walla,	9			0.41	**********													0.21			
Wash	1-2			0.51										1				0.11			
Washington, D.C.				1.18						1		1		1	00000	1		0.77			
Wichita, Kans				0.36								1						0.12		111111	
Williston, N. Dak.		**********		0. 22														0.08			1
Wilmington, N. C.		12.50 p. m.	3.20 p. m.	1.01	1.41 p. m.	2.16 p. m.	0.01	0.11	0.97	0.40	0 40	0.62	0.72	0.80						1	
Winnemucca, Nev		12.00 p. m.	5.20 p. m.	0. 19	Litt p. m.	2.10 p. m.	0.01	0.11	0. 21	0. 10	0. 40	0.00	0. 12	0.00				0.10			
Wytheville, Va	17	8.25 a. m.	8.45 p. m.	2.05	19 56 p. m	1.04 p. m.	0.52	0.24	0 22									0.10		1	1
Yankton, S. Dak.		8.20 B. III.		1.43		1.04 p. m.		0. 24	0.00	*****			*****					0, 62			
Yellowstone Park,								*****		*****		*****			*****				*****		
W yo	1-2		*********	0.56												*****		(*)			

Table III.—Data furnished by the Canadian Meteorological Service, October, 1911.

	1	Temperature.							Precipitation.			
Districts and stations.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. +mean min+2.	Departure from normal.	Mean maxi- mum.	Mean mini- mum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfa
	Ins.	Ins.	Ins.	°F.	*F.	° F.	°F.	° F.	°F.	Ins.	Ins.	Ins.
Johns, N. F		29, 90	-0.01	43.7	- 1.7	51.4	35.9	65	25	7.34	+ 1.99	
dney, C. B. I		30.04	+ .08	45.5	- 1.0	53.9	37.0	70	26	2.24	- 2.45	
difax, N. S.	29.96	30.04	+ .07	46.5	- 0.7	54.5	38. 4	68	26	2.03	- 3.52	
and Manan, N. B.	30.03	30.07	+ .08	47.9	+ 1.0	54.0	41.9	69	32	0.92	- 3.79	
and Manan, N. D	30.01		+ .06	47.9	+ 0.3	55.0	40.8	64	28	1.62	- 3.79	******
rmouth, N. S.	00.01	30.08	+ .00					66		1.02	- 3.87	
arlottetown, P. E. I		30.03	+ .07	45.0	- 1.5	51.9	38.1		28			
atham, N. B		30.04	+ .08	43.5	+ 0.5	53.3	33.7	66	22	0.58	- 3.38	
ther Point, Que		30.00	+ .05	41.3	+ 1.5	48.5	34.1	63	22	2.19	- 0.71	
ebec, Que	29.71	30.04	+ .04	43.9	+ 1.5	51.2	36.6	65	23	2.82	- 0.33	
ntreal, Que	29.85	30.06	+ .05	48.2	+ 3.4	54.6	41.7°	66	27	2.27	- 0.86	
necliffe, Ont	29. 42	30.04	+ .03	43.3	+ 0.5	54.6	32.0	70	15	3.01	+ 0.58	
tawa, Ont	29.80	30.13	+ .12	46.8	+ 3.0	55.3	38.3	70	24	2.21	- 0.34	
ngston, Ont	29.78	30.09	+ .06	48.8	+ 1.8	55.9	41.6	72	27	3. 31	+ 0.58	
ronto, Ont		30.08	+ .04	49.5	+ 2.9	57.7	41.3	75	27	3, 57	+ 1.21	
nite River, Ont		30.00	+ .02	36.9	- 0.2	47.7	26.1	70	4	1.49	- 0.86	
rt Stanley, Ont		30.07	+ .02	48.2	+ 0.4	56.3	40.1	65	28	4.23	+ 1.25	
athampton, Ont		30.01		47.0	+ 0.9	54.2	39.8	69	32	5.18	+ 2.01	
		30, 07	+ .06	45.6	+ 1.7	53.3	37.8	66	25	5. 37	+ 1.45	
rry Sound, Ont			+ .05	41.3	+ 1.4	49.1	33, 5	72	13	1.65	- 0.91	
rt Arthur, Ont		30.03	+ .08	42.9	+ 3.8	51.3	34.6	73	13	1.84	+ 0.14	1
nnipeg, Man		30.06						75	8			
nnedosa, Man		30.04	+ .07	39.9	+ 2.1	49.1	30.7			1.86	+ 0.66	ì
Appelle, Sask	27.73	30.01	+ .04	39.1	- 0.3	48.7	29.4	79	7	2.40	+ 1.30	
dicine Hat, Alberta		30.00	+ .03	44.6	- 0.2	55.7	33.5	80	14	0.45	- 0.13	
ift Current, Sask		30.07	+ .10	41.1	- 1.0	51.5	30.8	79	11	0.48	- 0.40	
gary, Alberta		30.06	+ .11	40.4	+ 0.3	51.6	29.1	74	14	0.51	+ 0.03	1
iff, Alberta		30.12	+ .17	37.1	- 2.2	48.8	25.4	64	7	0.56	- 0.46	-
monton, Alberta	27.73	30.05	+ .12	41.7	+ 0.6	54.1	29.4	79	11	0.51	- 0.19	
nce Albert, Sask	28. 43	30.00	+ .03	40.0	+ 2.9	50.9	29.1	80	5	0.04	- 0.79	i
tleford, Sask		30.04	+ .07	42.2	+ 2.6	54.1	30.3	82	8	0.11	- 0.34	
mloops, B. C		30.05	+ .09	48.0	+ 1.0	60.4	35.6	88	19	0.03	- 0.58	
toria, B. C.		30.09	+ .08	50.0	+ 0.8	57.3	42.8	66	34	0.61	- 1.76	
kerville, B, C		30.09	+ .15	37.6	- 2.1	46, 6	28.5	68	14	0.84	- 1.86	1
wson, Yukon		30.00	1 . 10	01.0	2.1	10.0	20.0	00		0.01	1.00	
milton, Bermuda		30.06	********	73.7	+ 0.7	79.0	68. 3	82	64	1.40	- 5.31	

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